Sugar Bulletin, No. 17.

DEPARTMENT OF AGRICULTURE,
BRITISH GUIANA.

FIELD EXPERIMENTS WITH SUGAR CANE, XVII.

THE VARIETY AND FERTILIZER POSITION OF THE SUGAR INDUSTRY, XIV.

REPORT OF THE SUGAR EXPERIMENT STATIONS FOR THE YEAR 1948.

THE "DAILY CHRONICLE," LTD., GEORGETOWN, DEMERARA,
1949.

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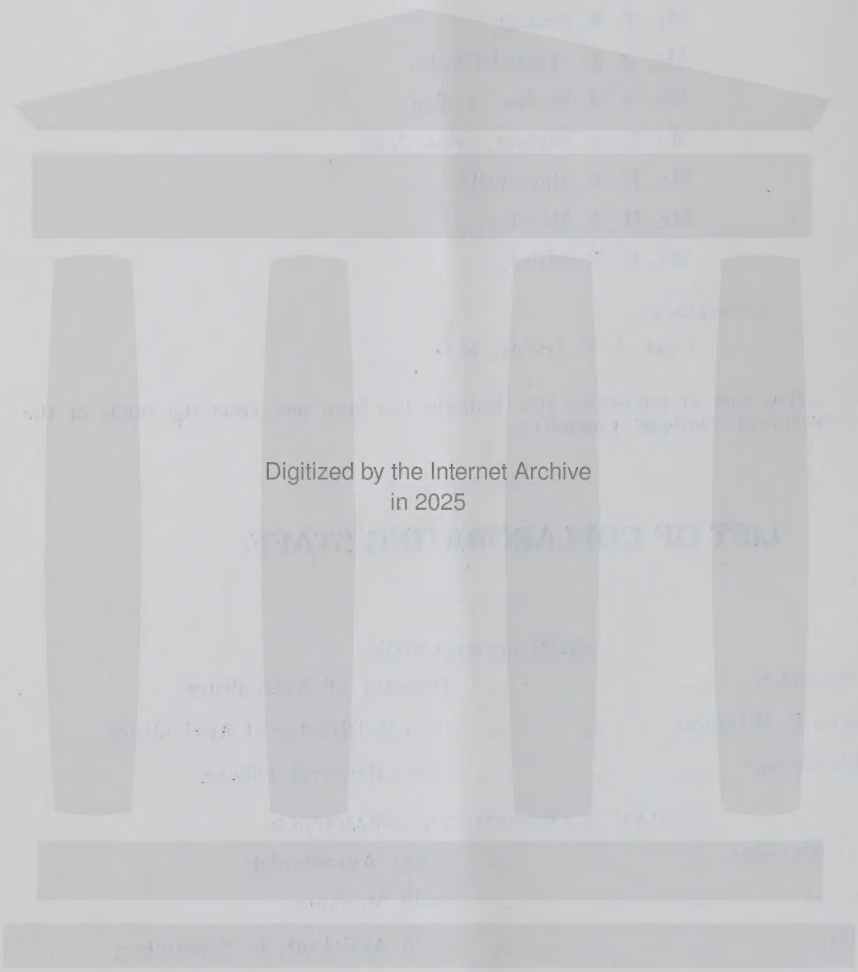

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FIELD EXPERIMENTS WITH SUGAR CANE, XVII.

BY

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AND

C. CAMERON, *Field Manager*.

INTRODUCTION.

This paper gives an account of the results of the programme of Field Experiments carried out by the Sugar Experiment Station during 1948. A total of 51 trials is described in the following categories :—

Variety	....	36
Manurial	....	8
Cultivation	....	7

Table I compares the monthly rainfall for 1948 at Sophia Sugar Experiment Station with the average for the last 27 years.

TABLE I.—**Comparison of January—December Rainfall at Sophia Sugar Experiment Station for 1948 with the Average for 1921—1948.**

Month.	Actual Rainfall, 1948. Inches.	Average Rainfall, 1921—1948. Inches.	Excess or Deficit, Inches.
January 1948	4.69	8.47	— 3.78
February ,,	7.49	4.64	2.85
March ,,	8.44	4.54	3.90
April ,,	12.46	6.38	6.08
May ,,	17.69	12.41	5.28
June ,,	14.36	14.67	— 0.31
July ,,	13.23	11.75	1.48
August ,,	3.95	7.43	— 3.48
September ,,	2.81	2.74	0.07
October ,,	2.56	3.84	— 1.28
November ,,	8.98	5.85	3.13
December ,,	9.88	13.93	— 4.05
Total	106.54	96.65	9.89

Inspection of the table will show that the total rainfall for the year was almost 10 inches above average and that this was due to abnormal rains in the first half of the year. Indeed, after a dry January, the Spring dry season was characterised by regular showers which resulted in 18.11 inches of rain, in excess of the 27 year average being recorded during the months of February, March, April and May. By contrast, the Autumn dry season was well defined and rainfall during the latter half of the year was slightly below normal. On the whole weather conditions throughout the colony were rather similar to the above with the Berbice and Courentyne estates tending to have even heavier rainfall in the Spring.

Conditions such as the above were extremely favourable to the growth of the Autumn crop, and in general, all experiments reaped in the latter half year yielded well. First ratoon trials which as plants had proved disappointing and possibly unreliable (See Bulletin 16) recovered well and gave very good returns. On the other hand, experiments harvested during the Spring of 1948 may be expected to suffer somewhat as ratoons owing to the very wet conditions which were encountered during and after harvest.

VARIETY TRIALS.

The results of the 1948 series of variety trials are discussed under the following sub-heads, *viz* :—

(a) Plant cane variety trials ;

(b) First ratoon variety trials ;

(c) Second ratoon variety trials ;

(d) Variety Performance Summary ;

(e) General Summary and Recommendations.

SUB-SECTION A.—PLANT CANE VARIETY TRIALS.

Fourteen plant cane variety trials were reaped in 1948. They are classified according to soil type and locality as follows :—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	1 — 8	8
Berbice Frontland Clay	9 — 11	3
Riverside Clay	12	1
Pegassy Clay	13	1

In addition to the above routine variety trials a specially designed "Variety Sorting trial" was reaped at Sophia. This is discussed separately at the end of the SUB-SECTION.

TABLE II.— **Results of Plant Cane Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre.		Trial No.
					Tons.	% Mean.	
	Sophia, Field 10 E. "A." Reaped 17.ix.48 at 12.25 months.						
MEANS OF 4 PLOTS:	D. 40/41	60.30	13.86	84.0	8.36	115.31	1
	D. 161/41	56.90	14.53	85.9	8.27	114.07	
	D. 145/41	51.18	16.11	86.0	8.24	113.66	
	D. 158/41	55.03	14.02	85.4	7.71	106.34	
	D. 142/41	51.13	13.82	87.3	7.06	97.38	
	D. 26/41	49.00	12.75	82.9	6.25	86.21	
	B. 34104	42.88	14.21	85.7	6.09	84.00	
	D. 73/41	40.39	14.91	86.4	6.02	83.03	
	Mean:				7.25	100.00	
	Significant Difference, 20: 1:				1.38	19.03	
	Sophia, Field 10 E. "B." Reaped 22.ix.48 at 12.25 months.						
MEANS OF 4 PLOTS:	D. 55/43	50.38	14.50	85.6	7.38	120.39	2
	D. 149/41	46.07	15.29	87.2	7.04	114.84	
	D. 142/41	43.73	14.43	86.2	6.31	102.94	
	D. 145/41	41.29	14.68	84.8	6.06	98.86	
	D. 58/43	46.05	13.01	86.7	5.99	97.72	
	D. 150/41	46.52	12.33	85.3	5.73	93.47	
	D. 103/41	42.37	12.60	89.0	5.34	87.11	
	B. 34104	43.77	11.79	83.5	5.16	84.18	
	Mean:				6.13	100.00	
	Significant Difference, 20: 1:				1.09	17.78	
	Sophia, Field 5 W. "A." Reaped 3.ix.48 at 13.25 months.						
MEANS OF 4 PLOTS:	D. 24/43	54.03	16.80	92.5	9.08	118.54	3
	D. 6/43	55.67	16.05	90.9	8.93	116.58	
	D. 40/43	51.75	16.61	92.5	8.59	112.14	
	B. 34104	55.30	14.95	91.7	8.26	107.83	
	D. 61/43	53.90	14.01	89.2	7.55	98.56	
	D. 10/43	52.18	13.24	87.2	6.90	90.08	
	D. 22/43	48.22	12.77	86.0	6.15	80.29	
	D. 19/43	43.92	13.33	88.5	5.85	76.37	
	Mean:				7.66	100.00	
	Significant Difference, 20: 1:				1.91	24.93	
	Sophia, Field 5 W. "B." Reaped 1.ix.48 at 13.00 months.						
MEANS OF 4 PLOTS:	D. 50/43	69.03	12.72	84.5	8.78	116.60	4
	D. 7/43	63.70	15.26	89.6	8.19	108.76	
	D. 9/43	63.39	12.38	85.6	7.85	104.25	
	D. 142/41	52.33	14.66	89.4	7.67	101.86	
	D. 2/42	57.43	12.63	87.9	7.25	96.28	
	B. 34104	51.72	13.75	87.4	7.11	94.42	
	B. 40102	59.39	11.57	80.3	6.87	91.23	
	D. 1/43	45.80	14.18	90.3	6.49	86.19	
	Mean:				7.53	100.00	
	Significant Difference, 20: 1:				—	—	

TABLE II. (Contd.).—**Results of Plant Cane Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Trial No.
	Sophia, Field 10 W. "A." Reaped 14.ix.48 at 12.25 months.						
MEANS OF 4 PLOTS:	D. 58/43	56.54	14.41	85.2	8.15	120.38	5
	D. 54/43	50.15	14.96	84.6	7.50	110.78	
	D. 142/41	49.51	14.36	87.7	7.11	105.02	
	D. 48/43	55.24	12.77	83.6	7.05	104.14	
	D. 23/43	45.88	14.19	85.8	6.51	96.16	
	D. 8/43	48.85	12.70	85.5	6.20	91.58	
	B. 34104	41.11	11.89	86.7	4.89	72.23	
	Mean:				6.77	100.00	
	Significant Difference, 20: 1:				0.86	12.70	
	Sophia, Field 10 W. "B." Reaped 7.ix.48 at 12.00 months.						
MEANS OF 4 PLOTS:	D. 18/43	50.25	13.09	88.8	6.57	107.53	6
	D. 142/41	39.09	16.01	87.4	6.35	103.93	
	D. 11/43	51.77	12.22	81.8	6 33	103.60	
	D. 40/40	43.42	14.43	84.8	6 26	102.45	
	D. 59/43	47.48	13.04	87.4	6.19	101.31	
	D. 42/43	42.21	13.53	85.4	5.71	93.45	
	B. 34104	43.35	12.44	86.8	5.39	88.22	
	Mean:				6.11	100.00	
	Significant Difference, 20: 1:				--	--	
	Pln. Oyle, Field 38 O. Reaped 4.ii.48 at 14.00 months.						
MEANS OF 5 PLOTS:	D. 103/41	72.76	11.57	83.5	8.42	107.81	7
	B. 34104	62.10	13.37	85.5	8.30	106.27	
	D. 161/41	70.64	11.74	81.0	8.29	106.15	
	D. 29/41	70.13	11.49	81.3	8.06	103.20	
	Co. 421	65.36	11.93	83.0	7.80	99.87	
	D. 21/41	64.14	11.09	76.2	7.11	91.04	
	D. 49/41	55.86	12.02	84.9	6.72	86.04	
	Mean:				7.81	100.00	
	Significant Difference, 20: 1:				1.17	14.98	
	Pln. L.B.I., Field 55 A.C.M. Reaped 8.xii.48 at 14.75 months.						
MEANS OF 5 PLOTS:	B. 41227	59.00	13.23	93.1	7.81	124.17	8
	D. 142/41	52.84	13.77	93.7	7.27	115.58	
	B. 40102	54.60	12.43	88.1	6.79	107.95	
	Co. 421	54.58	12.33	90.0	6.73	107.00	
	D. 29/41	50.84	13.06	95.7	6.64	105.56	
	B. 40105	51.64	11.48	85.9	5.93	94.28	
	D. 40/41	43.84	10.64	82.3	4.66	74.09	
	B. 34104	36.83	12.12	87.3	4.46	70.91	
	Mean:				6.29	100.00	
	Significant Difference, 20: 1:				0.58	9.22	
	Results of Plant Cane Variety Trials on Berbice Frontland Clay.						
	Pln. Port Mourant, Field A.E. 2. Reaped 16.xii.48 at 15.50 months.						
MEANS OF 5 PLOTS:	Co. 421	61.04	11.73	80.4	7.16	117.38	9
	B. 37172	53.02	12.43	83.2	6.59	108.03	
	B. 41227	55.44	11.50	82.3	6.38	104.59	
	D. 40/41	59.29	10.34	77.9	6.13	100.49	
	D. 142/41	47.32	12.94	83.0	6.12	100.33	
	B. 40105	54.23	11.26	77.7	6.10	100.00	
	D. 21/41	52.94	9.77	78.3	5.17	84.75	
	B. 34104	46.03	11.18	83.3	5.15	84.43	
	Mean:				6.10	100.00	
	Significant Difference, 20: 1:				1.01	16.56	

TABLE II. (Contd.).—**Results of Plant Cane Variety Trials on Berbice Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Trial No.
	Pln. Skeldon, Field A. 10, Section 82. Reaped 15.xii.48 at 12.50 months.						
MEANS OF 5 PLOTS:	D. 63/43	45.56	14.54	88.0	6.63	139.58	10
	B. 4098	32.00	16.12	88.1	5.16	108.63	
	Co. 421	30.68	15.55	88.2	4.77	100.42	
	D. 40/41	32.03	14.72	86.6	4.72	99.37	
	B. 37161	30.53	15.07	89.3	4.60	96.84	
	B. 43330	32.22	14.07	87.1	4.53	95.37	
	D. 21/41	25.75	15.40	88.3	3.96	83.37	
	B. 34104	22.65	16.18	90.1	3.66	77.05	
	Mean:				4.75	100.00	
	Significant Difference, 20: 1:				1.13	23.79	
	Pln. Rose Hall, Field T. 8 B. Reaped 24.xi.48 at 14.75 months.						
MEANS OF 5 PLOTS:	B. 40105	48.53	13.55	79.1	6.58	106.99	11
	B. 41227	46.78	13.69	78.8	6.40	104.06	
	B. 40102	52.05	11.94	75.0	6.21	100.98	
	Co. 421	46.46	12.98	82.2	6.03	98.05	
	B. 34104	45.28	13.26	84.2	6.00	97.56	
	D. 142/41	44.00	12.95	83.2	5.70	92.68	
	Mean:				6.15	100.00	
	Significant Difference, 20: 1:				—	—	
	Results of a Plant Cane Variety Trial on Riverside Clay.						
	Pln. Versailles, Field 31 V.S. Reaped 16.iv.48 at 16.00 months.						
MEANS OF 5 PLOTS:	D. 142/41	52.05	16.02	91.4	8.34	119.83	12
	D. 21/41	54.56	13.73	86.1	7.49	107.61	
	Co. 421	49.95	13.56	86.7	6.77	97.27	
	D. 49/41	42.86	12.23	86.0	5.24	75.29	
	Mean:				6.96	100.00	
	Significant Difference, 20: 1:				1.26	18.10	
	Results of a Plant Cane Variety Trial on Pegassy Clay.						
	Pln. Lusignan, Field L.E.E. 8. Reaped 18.xi.48 at 13.50 months.						
MEANS OF 5 PLOTS:	D. 158/41	53.61	15.22	86.4	8.16	126.12	13
	D. 40/41	52.40	13.63	83.1	7.14	110.36	
	D. 142/41	47.10	14.31	84.8	6.74	104.17	
	B. 37161	43.57	14.81	88.0	6.45	99.69	
	B. 41211	55.88	10.99	78.8	6.14	94.90	
	B. 34104	44.80	13.37	84.3	5.99	92.58	
	D. 28/38	34.46	16.38	86.7	5.64	87.17	
	Co. 421	40.24	13.67	83.1	5.50	85.01	
	Mean:				6.47	100.00	
	Significant Difference, 20: 1:				0.96	14.84	

Variety Sorting Trial.

This trial incorporating a 25 x 4 Lattice design was established in the Autumn of 1947 with a view to testing the efficiency of the layout as a means of eliminating at as early a stage as is compatible with safe selection, the less promising of the comparatively large numbers of seedlings which are being received from the British West Indies Central Cane Breeding Station annually.

At the time when the trial was established, the station had under multiplication 24 seedlings of the Barbados 1943 series. Of these 11 had reached the stage where it was possible to 'draw down' sufficient material to establish a replicated trial. To these were added two seedlings of the Barbados 1942 series, two of the Barbados 1941, B.38212, seven Demerara 1943 seedlings and two standards—B.34104 and D.14/34. The results of the trial appear in the table below.

Results of a Plant Cane "Variety Sorting" Trial.

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre,	
					Tons.	% Mean.
	Sophia. Field 13 W. Reaped 3.xi.48 at 12.00 months.					
Means of 4 Plots:	D. 54/43	49.07	13.61	83.5	6.68	121.68
	B. 43253	40.10	16.50	90.3	6.62	120.58
	B. 4110	45.03	14.19	87.7	6.39	116.39
	B. 43214	47.71	13.30	83.6	6.31	114.94
	B. 43388	48.52	12.62	84.7	6.12	111.48
	B. 4373	45.56	13.23	84.5	6.00	109.29
	L. 48/43	45.47	13.15	83.7	5.98	108.93
	B. 43255	44.90	13.30	83.6	5.97	108.74
	D. 38/43	43.88	13.21	86.9	5.80	105.65
	B. 34104	38.29	14.70	87.5	5.63	102.55
	B. 4327	40.66	13.69	87.0	5.57	101.46
	D. 42/43	45.32	12.22	83.6	5.54	100.91
	B. 43391	44.43	12.38	84.5	5.50	100.18
	B. 43337	43.75	12.34	82.4	5.40	98.36
	D. 63/43	46.37	11.02	81.2	5.33	97.09
	B. 38212	37.42	13.96	86.0	5.22	95.08
	D 51/43	50.78	10.25	75.8	5.21	94.90
	D. 14/34	38.45	13.36	85.5	5.14	93.62
	B. 43398	43.10	11.88	83.1	5.13	93.26
	B. 4306	43.37	11.77	80.1	5.11	93.08
	B. 4381	43.98	11.43	81.5	5.02	91.44
	D. 7/43	45.08	10.59	78.2	4.77	86.89
	B. 4145	37.65	12.36	80.3	4.65	84.70
	B. 42279	41.49	10.66	81.3	4.42	80.51
	B. 42114	34.05	11.29	81.6	3.85	70.13
	Mean:				5.49	100.00
	Significant Difference, 20: 1:				0.62	11.29

It will be seen that while the technique has proved satisfactory for the testing of a large number of varieties simultaneously (the significant difference is small—11.29% of the mean), it has not made the elimination of seedlings from future trial an easy task. Only four canes have been significantly beaten by B.34104 (the better of the two standards in this experiment) and a similar number have proved significantly superior to it. The conclusion may be drawn

therefore that of the eleven Barbados 1943 seedlings tested only B.43253 and B.43214 give promise of being markedly superior to the existing standards. As a result of the trial the elimination from further experiments of the varieties B.4145, B.42279, B.42114 and D.7/43 can be advised.

The success of this trial has led to the adoption of this type of layout as a routine step in the early testing of new batches of Barbados seedlings. To date two such experiments have been established involving seedlings of the Barbados 1944 series. The Barbados 1945 and 1946 seedlings will be so tested in due course.

SUB-SECTION B.—FIRST RATOON VARIETY TRIALS.

Nine first ratoon variety trials were reaped. They have been classified as follows :—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	14 — 18	5
Berbice Frontland Clay	19	1
Riverside Clay	20	1
Pegassy Clay	21 — 22	2

TABLE III.—**Results of First Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre.		Combined Results for 2 Crops, Plants and 1st Ratoons.		Trial No.
					Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.	
	Sophia, Field 13 E. Reaped 27.vii.48 at 12.75 months.								
MEANS OF 4 PLOTS:	D. 158/41	45.91	14.37	88.8	6.60	114.38	D. 158/41	13.04	14
	D. 130/41	42.21	14.67	87.8	6.19	107.28	D. 130/41	12.28	
	D. 1/42	41.13	13.81	88.6	5.68	98.44	B. 34104	11.53	
	D. 14/34	35.49	14.80	91.7	5.25	90.99	D. 1/42	11.33	
	B. 34104	36.60	13.95	89.5	5.11	88.56	D. 14/34	10.01	
	Mean:				5.77	100.00			
	Significant Difference, 20 : 1:				—	—			
	Pln. Lusignan, Field 56 A. Reaped 9.vi.48 at 14.50 months.								
MEANS OF 5 PLOTS:	D. 200/36	28.82	14.13	82.4	4.07	119.71	D. 200/36	11.96	15
	D. 14/34	30.29	13.23	84.7	4.01	117.94	D. 14/34	11.46	
	B. 37161	23.79	13.27	81.5	3.16	92.94	B. 37161	9.60	
	B. 34104	21.71	10.99	81.4	2.38	70.00	B. 34104	7.38	
	Mean:				3.40	100.00			
	Significant Difference, 20 : 1:				0.80	23.53			
	Sophia, Field 12 E. "B." Reaped 6.iii.48 at 13.00 months.								
MEANS OF 4 PLOTS:	B. 34104	36.20	14.93	90.3	5.40	108.00	Co. 421	13.32	16
	B. 37193	36.28	14.50	88.6	5.26	105.20	D. 14/41	11.95	
	D. 49/41	36.93	14.18	79.9	5.24	104.80	D. 49/41	11.70	
	Co. 421	38.79	13.16	86.7	5.10	102.00	D. 14/34	11.67	
	D. 14/34	34.01	14.50	88.2	4.93	98.60	B. 34104	11.35	
	D. 14/41	33.95	14.34	89.2	4.87	97.40	B. 37193	10.74	
	D. 150/41	33.92	12.38	86.4	4.20	84.00	D. 150/41	9.95	
	Mean:				5.00	100.00			
	Significant Difference, 20 : 1				—	—			
	Sophia, Field 5 E. "A." Reaped 25.xi.48 at 11.50 months.								
MEANS OF 4 PLOTS:	Co. 421	30.02	15.08	86.2	4.66	121.04	Co. 421	10.89	17
	D. 49/41	33.69	13.04	86.0	4.39	114.03	D. 49/41	10.24	
	B. 34104	29.64	13.39	88.9	3.97	103.12	B. 34104	9.16	
	B. 37193	31.69	11.55	87.8	3.66	95.06	B. 37193	9.10	
	D. 14/34	26.33	13.74	89.4	3.62	94.03	D. 200/36	8.49	
	D. 200/36	28.64	12.38	83.0	3.54	91.95	D. 14/41	8.48	
	D. 14/41	22.36	13.89	89.3	3.11	80.78	D. 14/34	8.20	
	Mean:				3.85	100.00			
	Significant Difference, 20 : 1:				—	—			
	Sophia, Field 5 E. "B." Reaped 20.xi.48 at 11.25 months.								
MEANS OF 4 PLOTS:	D. 40/41	36.85	13.57	83.8	5.00	103.89	D. 49/41	10.50	18
	D. 49/41	35.37	13.78	85.2	4.87	107.03	D. 26/41	10.15	
	D. 21/41	34.29	14.18	85.3	4.86	106.81	D. 21/41	9.92	
	D. 26/41	38.69	12.38	81.8	4.79	105.27	D. 40/41	9.72	
	Co. 421	35.67	12.43	83.5	4.43	97.36	Co. 421	9.40	
	D. 14/34	27.21	14.70	88.1	4.00	87.91	D. 14/34	8.65	
	B. 34104	29.04	13.46	87.4	3.91	85.93	B. 34104	8.27	
	Mean:				4.55	100.00			
	Significant Difference, 20 : 1:				—	—			

TABLE III. (Contd.).—**Results of a First Ratoon Variety Trial on Berbice Frontland Clay.**

	Variety.	Cane per Acre. Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Combined Results for 2 Crops, Plants and 1st Ratoons. Variety.	Combined Results for 2 Crops, Plants and 1st Ratoons. Sucrose in Cane per Acre. Tons.	Trial No.
	Pln. Albion, Field 11. Reaped 25.xi.48 at 11.25 months.								
MEANS OF 5 PLOTS:	D. 49/41	49.82	14.86	85.7	7.40	110.28	D. 49/41	12.24	19
	B. 34104	46.85	15.14	85.8	7.09	105.66	D. 161/41	11.61	
	Co. 421	47.92	14.38	82.6	6.89	102.68	D. 103/41	11.58	
	D. 21/41	44.80	14.36	83.7	6.43	95.83	B. 34104	11.46	
	D. 103/41	50.31	12.47	84.5	6.27	93.44	Co. 421	11.07	
	D. 161/41	46.32	13.39	80.7	6.20	92.40	D. 21/41	10.87	
	Mean:				6.71	100.00			
	Significant Difference. 20 : 1:				—	—			
	Results of a First Ratoon Variety Trial on Riverside Clay.								
	Pln. Farm, Field 45 E.C.G. Reaped 14.iv.48 at 11.75 months.								
MEANS OF 5 PLOTS:	D. 200/36	40.23	13.34	85.1	5.37	120.67	D. 200/36	9.65	20
	B. 34104	35.89	14.00	89.0	5.03	113.03	B. 34104	9.50	
	D. 14/34	27.43	14.94	90.8	4.10	92.13	D. 14/34	9.12	
	B. 3337	35.29	11.36	84.6	4.01	90.11	B. 3337	9.09	
	B. 37161	27.86	13.37	88.4	3.72	83.60	B. 37161	8.38	
	Mean:				4.45	100.00			
	Significant Difference, 20 : 1:				0.66	14.83			
	Results of First Ratoon Variety Trials on Pegassy Clay.								
	Pln. Schoon Ord, Field D. 16 O. Reaped 11.iii.48 at 11.75 months.								
MEANS OF 5 PLOTS:	D. 14/34	31.40	15.74	91.1	4.94	118.75	D. 14/34	11.50	21
	D. 200/36	37.55	12.45	83.0	4.68	112.50	B. 37161	10.64	
	B. 34104	31.60	14.47	90.7	4.57	109.86	D. 200/36	10.24	
	B. 37161	30.18	13.84	89.0	4.18	100.48	B. 34104	10.21	
	B. 3439	27.31	13.37	85.6	3.65	87 74	B. 3337	8.66	
	B. 3337	30.12	9.82	77.9	2.96	71.15	B. 3439	8.34	
	Mean:				4.16	100.00			
	Significant Difference, 20 : 1:				0.71	17.07			
	Pln. De Kinderen, Field 48 D.K. Reaped 25.xi.48 at 13.00 months.								
MEANS OF 5 PLOTS:	D. 14/34	27.19	15.34	91.9	4.17	105.84	B. 37161	9.34	22
	B. 34104	32.31	12.52	90.1	4.05	102.79	B. 34104	9.05	
	B. 37161	29.69	13.62	91.3	4.04	102.54	D. 14/34	8.25	
	D. 200/36	28.06	14.36	88.4	4.03	102.28	D. 200/36	7.89	
	D. 49/41	23.82	14.27	90.3	3.40	86.29	D. 49/41	7.67	
	Mean:				3.94	100.00			
	Significant Difference, 20 : 1:				—	—			

SUB-SECTION C.—SECOND RATOON VARIETY TRIALS.

There were thirteen such trials reaped in 1948 grouped as follows:—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	23 — 33	11
Berbice Frontland Clay (Bath Very Heavy Clay)	34	1
Pegassy Clay	35	1

TABLE IV.— **Results of Second Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Combined Results for 3 Crops. Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops. Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
Sophia, Field 11 E. "A." Reaped 25.viii.48 at 14.75 months.									
MEANS OF 4 PLOTS:	D. 93/41	30.95	14.14	91.9	4.38	111.73	D. 93/41	13.91	23
	P.O.J. 2878	23.35	14.87	90.2	3.47	88.52	P.O.J. 2878	11.07	
	Mean:				3.92	100.00			
	Significant Difference, 20: 1:				0.49	12.50			
Sophia, Field 11 E. "B." Reaped 24.viii.48 at 14.75 months.									
MEANS OF 4 PLOTS:	D. 29/41	40.52	13.49	89.6	5.46	116.92	D. 29/41	15.10	24
	D. 35/41	39.83	13.01	88.3	5.18	110.92	D. 35/41	14.75	
	D. 155/41	33.29	13.28	90.5	4.42	94.65	D.155/41	13.75	
	P.O.J. 2878	25.53	14.21	89.6	3.63	77.73	P.O.J. 2878	10.46	
	Mean:				4.67	100.00			
	Significant Difference, 20: 1:				1.02	21.84			
Sophia, Field 14 W. "B." Reaped 10.viii.48 at 14.75 months.									
MEANS OF 4 PLOTS:	D. 40/41	20.35	15.26	87.5	3.10	118.32	D. 40/41	13.30	25
	P.O.J. 2878	13.54	15.80	89.8	2.14	81.68	P.O.J. 2878	9.19	
	Mean:				2.62	100.00			
	Significant Difference, 20: 1:				—	—			
Sophia, Field 9 E. "A.". Reaped 7.viii.48 at 14.25 months.									
MEANS OF 4 PLOTS:	D. 34/41	37.64	14.69	89.9	5.53	114.97	D. 34/41	15.92	26
	D. 145/41	35.30	15.45	90.9	5.45	113.31	D. 29/41	15.86	
	D. 29/41	36.27	14.61	88.7	5.30	110.19	D. 145/41	15.12	
	P.O.J. 2878	19.93	14.87	91.3	2.96	61.54	P.O.J. 2878	10.86	
	Mean:				4.81	100.00			
	Significant Difference, 20: 1:				1.15	23.91			
Sophia, Field 9 E. "B." Reaped 5.viii.48 at 14 25 months.									
MEANS OF 4 PLOTS:	D. 21/41	39.52	15.58	91.6	6.16	129.41	D. 21/41	15.20	27
	P.O.J. 2878	23.51	14.31	88.0	3.36	70.59	P.O.J. 2878	9.53	
	Mean:				4.76	100.00			
	Significant Difference, 20: 1:				2.52	52.94			

TABLE IV. (Contd.).—**Results of Second Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Sophia, Field 8 W. "A." Reaped 20.ii.48 at 12.00 months.								
MEANS OF 4 PLOTS:	D. 103/41	40.72	13.77	87.4	5.61	126.35	D. 103/41	17.36	28
	P.O.J. 2878	24.40	13.47	85.3	3.28	73.87	P.O.J. 2878	11.66	
	Mean:				4.44	100.00			
	Significant Difference, 20 : 1:				0.54	12.16			
	Sophia, Field 8 W. "B." Reaped 18.ii.48 at 12.00 months.								
MEANS OF 4 PLOTS:	D. 24/41	35.57	12.78	85.5	4.55	114.32	D. 51/41	14.86	29
	D. 51/41	29.36	14.97	88.0	4.40	110.55	D. 24/41	14.61	
	D. 26/41	28.11	13.15	83.4	3.69	92.71	D. 26/41	13.31	
	P.O.J. 2878	22.83	14.38	87.2	3.28	82.41	P.O.J. 2878	11.73	
	Mean:				3.98	100.00			
	Significant Difference, 20 : 1:				0.45	11.31			
	Sophia, Field 15 W. "A." Reaped 26.ii.48 at 12.00 months.								
MEANS OF 4 PLOTS:	D. 161/41	30.82	12.19	86.6	3.76	124.50	D. 161/41	15.35	30
	D. 117/41	23.37	12.27	86.2	2.87	95.03	D. 117/41	14.60	
	P.O.J. 2878	18.77	12.93	87.7	2.43	80.46	P.O.J. 2878	11.69	
	Mean:				3.02	100.00			
	Significant Difference, 20 : 1:				—	—			
	Sophia, Field 3 W. Reaped 11.xi.48 at 11.50 months.								
MEANS OF 3 PLOTS:	D. 29/41	38.68	13.95	83.1	5.40	116.13	D. 29/41	16.29	31
	D. 103/41	42.28	12.30	86.4	5.20	111.83	D. 103/41	15.61	
	D. 3/41	30.23	14.82	87.6	4.48	96.34	D. 3/41	13.60	
	P.O.J. 2878	26.97	13.04	86.2	3.52	75.70	P.O.J. 2878	11.68	
	Mean:				4.65	100.00			
	Significant Difference, 20 : 1:				1.11	23.87			
	Sophia, Field 4 W. Reaped 28.x.48 at 11.25 months.								
MEANS OF 3 PLOTS:	Co. 421	43.55	14.30	84.6	6.23	112.05	D. 49/41	15.17	32
	D. 49/41	40.74	14.65	86.8	5.97	107.37	Co. 421	15.16	
	D. 26/41	39.60	13.77	85.5	5.46	98.20	D. 40/41	14.97	
	D. 40/41	42.93	12.41	84.4	5.33	95.86	D. 26/41	14.75	
	D. 25/41	35.91	14.66	89.1	5.26	94.60	D. 27/41	14.58	
	D. 27/41	38.80	13.12	88.8	5.09	91.55	D. 25/41	12.94	
	Mean:				5.56	100.00			
	Significant Difference, 20: 1:				—	—			
	Pln. Providence, D. Field 57-8 R.P. Reaped 14.xii.48 at 12.00 months.								
MEANS OF 5 PLOTS:	D. 14/34	28.05	14.40	93.4	4.04	107.45	D. 14/34	13.75	33
	B. 34104	27.97	13.69	92.2	3.83	101.86	B. 37193	13.57	
	B. 37193	28.38	13.36	90.3	3.79	100.80	D. 200/36	12.94	
	D. 200/36	25.95	13.11	88.7	3.40	90.43	B. 34104	12.77	
	Mean:				3.76	100.00			
	Significant Difference, 20 : 1:				—	—			

TABLE IV. (Contd.).—**Results of a Second Ratoon Variety Trial on Berbice Frontland Clay (Bath Very Heavy Clay).**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Pln. Blairmont, Field 13 Rp. Reaped 2.iii.48 at 12.25 months.								
MEANS OF 5 PLOTS:	D. 14/34	31.46	14.95	89.2	4.70	111.90	B. 34104	14.62	34
	B. 34104	30.17	14.98	89.5	4.52	107.62	D. 14/34	14.03	
	D. 25/38	29.77	13.02	87.4	3.88	92.58	D. 25/38	12.74	
	D. 200/36	28.65	12.92	86.3	3.70	88.10	D. 200/36	11.49	
	Mean:				4.20	100.00			
	Significant Difference, 20 : 1:				0.74	17.62			
	Results of a Second Ratoon Variety Trial on Pegassy Clay.								
	Pln. Leonora, Field A Ed. Reaped 25.viii.48 at 11.50 months.								
MEANS OF 5 PLOTS:	B. 3337	42.14	14.52	85.4	6.12	125.15	D. 28/38	16.73	35
	Co. 421	34.37	14.49	85.9	4.98	101.84	B. 3337	16.43	
	D. 28/38	32.48	14.60	87.9	4.74	96.93	Co 421	15.60	
	B. 37161	31.91	14.01	88.3	4.47	91.41	B. 37161	12.66	
	B. 34104	29.24	14.21	87.1	4.16	85.07	B. 34104	11.38	
	Mean:				4.89	100.00			
	Significant Difference, 20 : 1:				0.60	12.27			

SUB-SECTION D.—VARIETY PERFORMANCE SUMMARY.

Varieties tested during 1948 fall into the following groups :—

(a) Standard Canes ;

(b) Barbados seedlings produced prior to the Barbados 1940 series and Demerara seedlings prior to the Demerara 1941 series;

(c) Seedlings of the Barbados 1940 and 1941 series and Demerara seedlings of the Demerara 1941 series;

(d) Barbados seedlings of the Barbados 1942 and 1943 series and Demerara seedlings of the Demerara 1942 and 1943 series.

Weather conditions throughout 1948 were, for the most part, very favourable and in the majority of cases yields in variety trials were good.

A. Standard Canes.

B.34104 (Co. 281 x B.H. 10/12)

Trial Nos. : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 33, 34, 35.

The variety B.34104 has become the most widespread and important commercial cane grown in the colony, hence its use as a standard cane would seem amply justified. Unfortunately both in 1947 (see Bulletin No. 16, p.14) and in 1948 the performance of this cane in variety trials has not proved a reliable index of its true merit. In 1948 it has been particularly disappointing. Harvested in 24 trials in which it has been compared with a total of 56 varieties (132 individual comparisons) it has proved significantly inferior to its competitors on no less than 30 occasions and superior on ten. The quality of its juice has been average (68 comparisons in its favour and 68 against) and it is only in the vigour of its ratooning that it has shown sign of its real worth. Ratooning ability has been measured by working out the 'Ratoon Percentage', *i.e.* the yield of the ratoons in tons cane per acre expressed as a percentage of the plant crop. Compared on this basis with the varieties against which it was tested it proved superior on 36 out of 53 occasions.

Careful observations of the behaviour of this cane in the field have suggested two possible explanations of its poor performance. In the first place (as noted in Bulletin No. 16) rats exhibit a strong preference for this variety and where small plots of it are planted surrounded with other canes (as in a variety trial) they may attack it at all stages of growth and greatly diminish its final yield. This is probably the explanation of the subnormal yields of B.34104 in trials 15 and 35. Secondly, tops of this (and other) standard varieties are supplied by the estates whenever trials are established, in contrast to the tops of the newer varieties which are brought from Sophia. It sometimes happens that the quality of estate supplied planting material is below that supplied by the Sugar Experiment Station. When this is the case a characteristic result is for the standard to yield rather poorly as plants but to recover and perform well as first ratoons. A typical example to which this explanation might apply occurs in trial No. 19 where the yield of cane per acre of B.34104 as first ratoons exceeds its plant yields by over 16 tons. Both aspects are receiving careful attention and it is to be hoped that more reliable results will be forthcoming in 1949.

Co. 421 (P.O.J. 2878 x B.3412)

Trial Nos : 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 32, 35.

In view of the unreliable performance of B.34104 during 1948 it is fortunate that the decision to use two standards in estate trials was adhered to. Co. 421

was reaped in 13 experiments and performed well throughout as the following statistics show :—

	No. of times Superior to Competitors.	*Significantly.*	*No. of times Inferior to Competitors.*	*Significantly.*
Tons Sucrose per acre	41	10	31	7
Pol. % Cane	39		35	
Ratooning ability	16		16	

Thus in those experiments in which both appeared in 1948 Co. 421 can usually be looked upon as providing a safer standard of comparison than B.34104. It is felt that this is due in large measure to its comparative immunity to rat attack and to its very vigorous growth which enabled it to do well in the few trials in which growing conditions were unfavourable.

D. 14/34. (Co.281 x Diamond 10)

Trial Nos : 14, 15, 16, 17, 18, 20, 21, 22, 33, 34.

This cane appeared in 10 trials in 1948 and its performance in them give a very good idea of its characteristics. It is an outstanding juice cane, 37 comparisons being in its favour and only 7 against and its yield per acre is somewhat better than average (25 comparisons in its favour and 19 against). It does not seem to be a particularly strong ratooner, however, and was beaten 29 times, being better than its competitors 15 times.

P.O.J. 2878. (P.O.J. 2364 x E.K. 28)

Trial Nos : 23, 24, 25, 26, 27, 28, 29, 30, 31.

This cane was only reaped in trials in which it was the only available standard and was well beaten in all of them by the majority of varieties against which it was tested.

B. Barbados Seedlings produced prior to the Barbados 1940 series and Demerara Seedlings prior to the Demerara 1941 series.

Of this group comprising 9 varieties, only one, B.37161, is recommended for commercial trial. One variety, D.200/36, is already grown on a small scale commercially while the varieties B.37172 and D.40/40 have only been reaped in one trial each in 1948 and will be tested further. The varieties B.3337, B.3439, B.37193 and D.28/38 will be discarded.

B.37161. (B.3365 x B.603)

Trial Nos : 10, 13, 15, 20, 21, 22, 35.

Nursery material of this seedling was distributed to estates during 1947 and 1948 and it is expected that reports of its performance on an estate scale will be available in 1949. During 1948 it was included in seven trials and proved

superior to the standard canes on 5 occasions, being, however, beaten by them 6 times. It did best as a plant on pegassy clay at Lusignan L.E.E. 8 (Trial No. 13) in which it was ahead of both B.34104 and Co.421 in yield and juice quality. In those trials in which it performed worst, it may have been handicapped by rat damage.

D.200/36. (P.O.J. 2878 x Co.213)

Trial Nos : 15, 17, 20, 21, 22, 33, 34.

This cane, which was recommended for limited commercial planting in Bulletin No. 16, was reaped in 7 trials in 1948. Its performance relative to the standards was as follows :—

	No. of Times superior to Standards.	*Significantly.*	*No. of times beaten by Standards.*	*Significantly.*
Tons Sucrose/Acre	5	2	10	2
Pol. % Cane	3		12	
Ratoon %	8		7	

It is considered that these results confirm the opinion expressed in Bulletin No. 16 that D.200/36 is a cane of average yielding ability with a somewhat inferior juice. It is felt that a small acreage should be maintained in the colony as a possible basis for experiments with mechanical harvesting for which its upright habit makes it very suitable. Other than for this purpose it cannot be recommended and will not be tested further experimentally.

B.37172. (P.O.J. 2878 x B.2935)

Trial No : 9.

This cane of which good reports have been received from Trinidad was reaped in Trial No. 9 at Port Mourant. It performed creditably giving a very fair yield accompanied by juice of high quality. It will be tested further.

B.3337. (B. (30) L.7)

Trial Nos : 20, 21, 35.

The juice quality of this variety continued to be variable. As this is not compensated by outstanding yielding ability it has been decided to discard it.

B.3439. (B.11569 x Q.813)

Trial No : 21.

Shows no promise of succeeding under British Guiana conditions.

B.37193. (B.3365 x B.603)

Trial Nos : 16, 17, 33.

This cane is a fair performer being a specially vigorous ratooner. However it is not thought to be as promising as the newer varieties under test and has been discarded.

D.28/38. (Co. 421 x Diamond 10)

Trial Nos : 13, 35.

Recommended for further experiment in 1947 because of its exceptional juice, D.28/38 was reaped in two trials (Nos: 13, 35) in 1948. It proved to have the best quality juice in both trials but its yield of cane was too low to suggest that it will ever prove a commercial success and it has been discarded.

C. SEEDLINGS OF THE BARBADOS 1940 AND 1941 SERIES AND DEMERARA SEEDLINGS OF THE DEMERARA 1941 SERIES.

This group includes B.40102, B.40105, B.4098, B.41211 and B.41227 together with 28 seedlings of the Demerara 1941 series. Of these, one variety, D.49/41, was recommended for nursery establishment in 1947. As a result of its 1948 performance the distribution of nursery material of the variety D.142/41 to estates has been commenced. The varieties B.40102, B.40105, B.4098, B.41211, B.41227, D.5/41, D.23/41, D.25/41, D.26/41, D.29/41, D.73/41, D.130/41, D.145/41, D.149/41, D.156/41 and D.161/41 require further experimental testing. Fifteen seedlings of the Demerara 1941 series have been discarded.

D.49/41. (D.338/33 x Co.213)

Trial Nos : 7, 12, 16, 17, 18, 19, 22, 32.

This variety was distributed on a small scale to estates in 1947. It was reaped in 8 experiments during 1948 and continued to perform satisfactorily, being superior to the standard canes in 9 out of 17 yield comparisons, possessing good juice and showing fair ratooning ability. In two trials however (Nos. 7 and 12) at Ogle and Versailles respectively it was disappointing. Both of these experiments were reaped early in the Spring crop and D.49/41 was observed to have arrowed profusely and showed a high percentage of rotten cane, this tending to confirm the suggestion made in Bulletin No. 16 that this cane should be confined to Autumn or late Spring planting. In addition the results of trial No. 22 (48 De Kinderen) suggest that it is happier on clay than on pegasse. Confirmation of these points must await further experiment; in the meantime those estates which have received planting material of D.49/41 should bear them in mind in planning its extension.

D.142/41. (B.34104 x Co.213)

Trial Nos : 1, 2, 4, 5, 6, 8, 9, 11, 12, 13.

As a result of its performance in 10 plant cane trials reaped during 1948 it has been decided to distribute nursery material of this variety to estates. Six of these trials were on Demerara frontland clay (5 being at Sophia), two on Berbice frontland clay, one on Riverside clay and one on pegassy clay, and the performance of D.142/41 may be looked on as extremely promising in all of them. Although seldom producing the highest tonnage of cane per acre, this seedling consistently outyielded the standards by virtue of the high quality of

its juice. In this connection it was found to be superior on 11 out of 14 comparisons of Pol. % cane. As regards tons sucrose per acre it was again better than the standards on 11 occasions and significantly so 5 times. It was outyielded by the standard 3 times but only once was the difference significant.

D.142/41 is an attractive broad leaved cane of semi-erect habit. It tends to be rather a slow starter but grows vigorously after the first 4—6 weeks. It stools fairly well but is perhaps inferior in this respect to B.34104 and other heavy stooling varieties. It produces long straight canes of medium thickness, reddish brown in colour and with the nodal split characteristic of its parent B.34104. It is felt that this cane would appeal to cutters and would lend itself to the loading of heavy punts. Until its behaviour as ratoons has been ascertained by experiment it cannot be recommended to the industry, but its cautious extension pending further trial is advised.

B.41227. (B.35207 x P.O.J.2878)

Trial Nos : 8, 9, 11.

Among the Barbados seedlings tested in this group B.41227 appeared to be the most promising. In the three plant cane trials in which it was reaped it outyielded the controls on 5 occasions out of 6 (3 times significantly) and in pol. % cane comparisons it was again superior 5 times out of 6. It has now been included in 12 trials and is being multiplied so that nursery material can be sent out to estates.

B.40102. (B.3439 x Co.290)

Trial Nos: 4, 8, 11.

B.40105. (B.3439 x Co.290)

Trial Nos : 8, 9, 11.

Both of these varieties occurred in 3 plant cane trials in 1948 and performed well, although neither appeared as promising as B.41227. They will receive further experimental testing.

B.41211. (B.3439 x B.37252)

Trial No : 13.

This cane which was mentioned in Bulletin No. 16 as having done exceptionally well in the only trial in which it was reaped in 1947 was again reaped only once in 1948. This was in trial No. 13 on pegassy clay at Lusignan. It again yielded heavily but its juice quality which had been good at Blairmont was very poor. It is clear that further testing of this cane is essential and it has been included in 7 trials to be reaped in 1949.

B.4098. (B.3439 x Co.290)

Trial No : 10.

This trial at Skeldon was somewhat unsatisfactory and it is felt that the results may be unreliable. Six experiments including this variety are scheduled for reaping in 1949.

D.158/41. (Co.421 x D.166/34)

Trial Nos : 1, 13, 14.

D.158/41 was reaped in 3 experiments during 1948 and is regarded as a most promising seedling. It was not outyielded by a control cane in any trial and its juice quality was satisfactory. Its performance at Lusignan (Trial No. 13) was particularly impressive—it was significantly superior to all competitors in this experiment—and its multiplication for further testing and possible distribution is being proceeded with as rapidly as possible.

D.149/41. (Co.421 x D.200/36)

Trial No : 2.

The performance of D.149/41 in this trial was considered good enough to warrant its extensive testing.

D.26/41. (P.O.J. 2878 x S.C. 12/4)

Trial Nos : 1, 18, 29, 32.

D.29/41. (P.O.J. 2878 x S.C. 12/4)

Trial Nos : 7, 8, 24, 26, 31.

D.161/41. (D.419/33 x D.216/36)

Trial Nos : 1, 7, 19, 30.

The performance of these varieties in 1948 was fair. They will be reaped in those trials in which they have already been planted.

D.145/41. (Co. 421 x D.200/36)

Trial Nos : 1, 2, 26.

This cane was harvested in three Sophia trials and merits further testing.

D.*25/41* (Trial No: 32)	*D.73/41* (Trial No: 1)	*D.130/41* (Trial No: 14)
(P.O.J. 2878 x S.C.12/4)	(Co. 281 x D.197/35)	(Co.421 x Co.213)

These canes will be observed and further tested if it is considered necessary.

As a result of the 1948 variety testing programme it has been decided to discard the remainder of the 1941 series under test. These included the seedlings D.21/41, D.40/41 and D.103/41 all of which outyielded standard canes on many occasions, but were inconsistent with regard to juice quality.

D. Barbados Seedlings of the 1942 and 1943 Series and Demerara Seedlings of the 1942 and 1943 Series.

The only Barbados seedling of the 1942 and 1943 series which appeared in any trial except the Variety Sorting Trial already discussed was B.43330 which was included in Trial No. 10 at Skeldon. As stated in the notes on B.4098 this experiment was felt to be unreliable and no conclusions can be drawn from the performance of B.43330 in it.

Little can be said at this stage of the two Demerara 1942 seedlings and the 22 seedlings of the Demerara 1943 series. As a result of their behaviour in trials in 1948 the following seedlings of the Demerara 1943 series will be discarded :—D.10/43, D.22/43, D.19/43 and D.8/43.

SUB-SECTION E.—GENERAL SUMMARY AND RECOMMENDATIONS.

Table V compares the performance of all canes which have been reaped in experiments for three crops and two crops with B.34104 on a basis of their sucrose yields. In previous years P.O.J. 2878 was used as the standard of comparison and the change over to B.34104 has necessarily led to a reduction in the number of canes appearing in the table. Table VI compares for some of the more important varieties certain data indicative of juice quality and here again B.34104 has been substituted for P.O.J. 2878.

Table V.—**General Mean Sucrose Yields in Tons per Acre from all Experiments.**

Variety.	Plants		First Ratoons.		Second Ratoons.		Total Yield	Total Yield B. 34104 = 100.00
	Yield.	No. of Expts.	Yield.	No. of Expts.	Yield.	No. of Expts		
	Three Crops, Plants, First and Second Ratoons.							
Co. 421	6.19	17	5.24	9	4.29	4	15.72	111.73
B. 37161	6.26	10	4.61	6	4.31	1	15.18	107.89
B. 37193	5.69	4	4.88	3	3.97	1	14.54	103.34
B. 34104	**5.32**	**42**	**4.74**	**25**	**4.01**	**13**	**14.07**	**100.00**
D. 14/34	5.08	24	4.60	19	3.79	6	13.47	95.74
	Two Crops, Plants and First Ratoons.							
D. 158/41	6.42	3	6.12	1	—	—	12.54	124.65
D. 26/41	5.91	2	5.81	1	—	—	11.72	116.50
D. 130/41	5.05	1	5.74	1	—	—	10.79	107.26
D. 49/41	5.73	8	4.91	5	—	—	10.64	105.77
D. 161/41	6.23	3	4.15	1	—	—	10.38	103.18
B. 34104	**5.32**	**42**	**4.74**	**25**	—	—	**10.06**	**100.00**
D. 1/42	4.68	1	5.27	1	—	—	9.95	98.91

TABLE VI.—The Quality of the Most Promising Seedlings as Compared with B. 34104.

Variety.	Pol. % Cane.		Juice Purity.		Fibre % Cane.	
	% of B. 34104.	No. of Comparisons.	% of B. 34104.	No. of Comparisons.	% of B. 34104.	No. of Comparisons.
D. 14/34	103.97	48	100.68	48	94.53	30
D. 40/40	116.00	1	97.70	1	89.35	1
D. 26/41	93.50	2	94.97	2	124.73	1
D. 29/41	96.31	2	102.43	2	88.75	2
D. 49/41	101.76	13	98.85	13	100.09	8
D. 142/41	111.61	9	101.75	9	108.13	8
D. 145/41	118.42	2	100.95	2	101.61	2
D. 149/41	129.69	1	104.43	1	77.93	1
D. 158/41	106.91	4	100.55	4	—	—
B. 37161	101.85	17	100.26	17	93.07	15
B. 37193	94.07	8	97.56	8	110.41	5
B. 40102	91.85	3	94.01	3	100.33	3
Co. 419	96.54	7	96.77	7	118.18	1
Co. 421	98.45	30	98.01	30	105.37	16
B. 34104	**100.00**	—	**100.00**	—	**100.00**	—

Inspection of these tables suggests that the varieties which have been distributed to estates as nursery material are all likely to merit limited commercial trial. B.37161 is second in the three-crop-yield table and in Table VI its juice quality appears to be satisfactory, although the fibre % cane is rather low. D.49/41 has outyielded the standard in the two-crop-yield table and its juice quality appears to be satisfactory. The excellent juice of D.142/41 is evident from Table VI and this variety also appears to have a high fibre content.

The results of the 1948 series of experiments on the whole suggest that estates should continue to make their main planting in B.34104 and to a lesser extent in D.14/34. The seedling B.37161 should be planted on a small scale and its commercial performance, factory behaviour etc. determined. D.49/41 may be tried on a similar scale as a late Spring or Autumn cane on clay soils. The seedling D.142/41 should be extended on a nursery scale pending further experimental results.

MANURIAL TRIALS.

The results of 8 manurial trials harvested during 1948 are presented under the following sub-sections, *viz.*,

A—Phosphatic manures,

B—Phosphatic manures and liming materials,

C—Phosphatic manures in combination with Ammonium Sulphate and Liming materials,

D—Microplot confirmation trial,

E—Summary.

SUB-SECTION A.—PHOSPHATIC MANURES.

(A1—A3) Phosphatic Manures on Riverside Clay.

Fields 7 and 2/4 H., Farm.

The results of two trials involving applications of calcium superphosphate and Rock phosphate at 6 cwt. per acre are presented in Tables I & II. In no case have significant benefits resulted from the use of these fertilizers.

Table I.—Effect of Phosphatic Manures on Flood-fallowed Frontland.

Treatments per Acre.	Mean Yields in Tons Cane per Acre.
	Farm.
	Field 7 F., Diamond 10.
	Plants.
No Phosphate	43.46
Superphosphate, 6 Cwt.	44.80
Rock Phosphate, 6 „	46.05
Mean :	44.77

Differences not Statistically Significant.

Basic application of 2 Cwt. Ammonium Sulphate and 10 Cwt. Limestone per Acre.

TABLE II.—**Effect of Phosphatic Manures on Flood-fallowed Riverside Clay.**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Farm. Field 2/4 Herstelling, Diamond 10.		
	Plants.	1st Ratoons.	Total for 2 Crops.
No Phosphate	44.35	31.04	75.39
Superphosphate, 6 Cwt	39.04	35.53*	74.57
Rock Phosphate, 6 „	37.83	33.01*	70.84
Mean :	40.41	33.19	

Differences not Statistically Significant.

*Residual effect from Plant cane application

Basic application of 2 Cwt. Ammonium Sulphate per Acre.

SUB-SECTION B.—PHOSPHATIC MANURES AND LIMING MATERIALS.

(B1—B2) PHOSPHATIC MANURES ON INTERMEDIATE AND PEGASSY CLAY.

Field 108 G.D., Diamond (South & North End).

Two trials involving the use of the proprietary compound *"Limax", Limestone and a combination of Limestone and rock phosphate were established on contrasting soil types occurring within the same field. The results are summarized in Tables III & IV. It will be seen that there are no significant differences between mean treatment yields.

* A proprietary mixture containing Lime and certain fungicidal and insecticidal agents including organic hydrocarbons sulphur and polysulphides, etc.

TABLE III.—**Effect of Phosphatic and Liming Materials on Plant Canes on Intermediate Clay (South End).**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Field 108 G.D., Diamond. B. 34104.
Limax ..... 10 Cwt.	33.49
Limestone ..... 10 ,,	32.18
Limestone ..... 10 ,, and Rock Phosphate 6 ,,	33.17
Mean :	32.95

Differences not Statistically Significant.

TABLE IV.—**Effect of Phosphatic and Liming Materials on Plant Canes on Pegassy Clay (North End).**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Field 108 G.D., Diamond. Co. 419.
Limax ..... 20 Cwt.	49.52
Limestone ..... 20 ,,	47.51
Limestone ..... 20 ,, and Rock Phosphate 6 ,,	50.91
Mean :	49.31

Differences not Statistically Significant.

SUB-SECTION C.—PHOSPHATIC MANURES IN COMBINATION WITH AMMONIUM SULPHATE AND LIMING MATERIALS.

(C1) Superphosphate and Ammonium Sulphate on Pegassy Clay.

Field 110 M.R., Lusignan.

The trial in 110 M.R. the results of which appear in Table V involves a comparison of ammonium sulphate at 6 cwt./acre to plants and ratoons, superphosphate of 10 cwt./acre to plants only and a dressing of 6 cwt./acre ammonium sulphate plus 10 cwt./acre superphosphate to plants with an additional 6 cwt./acre ammonium sulphate applied to the first ratoons. Differences between treatment means as plant canes are not statistically significant. The yield of the trial as first ratoons is abnormally low and it is doubtful if reliance can be placed on the results.

TABLE V.—**Effect of Ammonium Sulphate and Superphosphate on Pegassy Clay.**

Treatments per Acre.			Mean Yields in Tons Cane per Acre. Lusignan. Field 110 M.R., P.O.J. 2878.		
	Plants.	1st Ratoons.	Plants.	1st Ratoons.	Total for 2 Crops.
Amm. Sulph.,	6 cwt.	6 cwt.	41.73	28.13	69.86
Superphosphate	10 „	—	36.30	23.32	59.62
Amm. Sulph., plus Superphosphate	6 „ 10 „	6 cwt.	37.23	21.55	58.78
Mean :			38.42	24.33	

Differences not Statistically Significant.

(C2—C3) Heavy Dressings of Superphosphate, Ammonium Sulphate and Limestone on Flood-fallowed Frontlands Clay and on Flood-Fallowed Bath Very Heavy Clay.

Fields 74 B.L., Blairmont and 7 V., Bath.

The aim of these two 3 x 3 x 3 factorial trials was to test the effectiveness of the combination of high Nitrogen—high Phosphate manuring which had been reported as being remarkably successful in Trinidad and elsewhere in the

British West Indies (Potter, J. A., "Fertilizer Field Experiments with Sugar Cane on Phosphate-deficient Soils in South Trinidad" *Trop. Agric.* Vol. xxiv, pp 94–107, 1947.) The results are summarized in Tables VI & VII. It will be seen that significant benefits occur in only one instance—10 cwt./acre sulphate of ammonia being significantly better than the 4 cwt./acre dressing in the trial in 74 B.L. No interaction between any of the three fertilizers occurred in either trial.

TABLE VI.—**Results of a 3 x 3 x 3 Factorial Experiment on Flood-fallowed Frontland.**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Blairmont, Field 74 B.L. Diamond 10, Plants.
Sulphate of Ammonia, 0 Cwt.	45.56
,, ,, 4 ,,	44.86
,, ,, 10 ,,	51.18
Mean:	47.20
Sig. Diff., 20:1:	5.09
Superphosphate, 0 Cwt.	47.57
,, 6 ,,	48.40
,, 12 ,,	45.63
Mean:	47.20
Sig. Diff., 20:1:	—
Limestone, 0 Tons.	43.67
,, 3.5 ,,	48.02
,, 7.0 ,,	49.92
Mean:	47.20
Sig. Diff., 20:1:	5.09

TABLE VII.—Results of a 3 x 3 x 3 Factorial Experiment on Bath Heavy Clay.

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Bath, Field 7 Versailles. Co. 421, Plants.
Sulphate of Ammonia, 0 Cwt.	52.73
" " 4 "	53.86
" " 10 "	56.58
Mean:	54.39
Sig. Diff., 20:1:	
Superphosphate, 0 Cwt.	50.89
" 6 "	57.57
" 12 "	54.71
Mean:	54.39
Sig. Diff., 20:1:	
Limestone, 0 Tons.	55.29
" 3.5 "	51.75
" 7.0 "	56.12
Mean:	54.39
Sig. Diff., 20:1:	

SUB-SECTION D.—MICROPLOT CONFIRMATION TRIAL.

Field 69 Z., Uitvlugt.

The results of two Microplot confirmation trials were reported in Sugar Bulletin No. 16. A similar experiment was reaped in 1948. The results, expressed on a percentage basis are compared in Table VIII with those obtained from the preceding maize microplot. Apart from a slight response to the sulphate of ammonia application, the cane crop has not benefited from any of the fertilizers applied. This in marked contrast to the results of the maize microplot where considerable yield increments have accrued from dressings of Limestone, Superphosphate and Sulphate of potash.

TABLE VIII.—**Comparison of Yields Expressed as a Per Cent. of Control of Holme Maize Micro-Plot and Confirmation Trial on Cane in Field 69 Z., Uitvlugt.**

Treatments.		Plants, B. 34104. % of Control.	
		Cane.	Maize.
Limestone, Tons per Acre.	0	100.0	100.0
" " " "	1.5	—	166.8
" " " "	2.0	99.6	—
" " " "	3.0	—	163.2
Superphosphate, Cwt per Acre.	0	100.0	100.0
" " " "	4	—	116.3
" " " "	6	90.7	—
" " " "	8	—	155.0
Sulphate of Potash, Cwt per Acre.	0	100.0	100.0
" " " " "	1	—	124.5
" " " " "	1.5	99.6	—
" " " " "	2.0	—	138.4
Sulphate of Ammonia, Cwt per Acre.	0	100.0	100.0
" " " "	2	103.2	144.1
" " " "	4	—	141.1

SUB-SECTION E.—SUMMARY.

The manurial trials reaped during 1948 indicate

(1) Response to phosphate manuring on Riverside clay is negligible;

(2) The proprietary compound Limax exercises no beneficial effects on yield as compared with equivalent dressings of limestone and a combination of limestone and rock phosphate;

(3) The use of high Nitrogen—high Phosphate manurial formulae has not so far resulted in increased yields of plant canes under British Guiana conditions. This is true for two soil types and whether they are accompanied by heavy dressings of limestone or not. In view of the remarkable success reported for this manurial treatment in Trinidad and elsewhere in the West Indies, further trials along these lines have been established;

(4) The results of a single Microplot confirmation trial reaped in 1948 amply confirm the tentative conclusion advanced in Bulletin 16 that this method of predetermining the manurial requirements of Sugar Cane under British Guiana conditions is unreliable.

CULTIVATION TRIALS.

The results of 7 cultivation trials reaped during 1948 are presented in two sub-sections, *viz* :—

F—Cultivation trials,

G—Summary and discussion.

SUB-SECTION F.—CULTIVATION TRIALS.

(F1—F4) *Field 1 A.O.G., Port Mourant.*

This trial was reaped as third ratoons, the results being summarised in Table I. It will be seen that there was no significant difference in yield between the mean yields of the seven cultivation treatments applied.

TABLE I.—Results of a Cultivation Trial on Flood-fallowed Frontland.

Treatment No.	Bed Width, Ft.	Rows, 6 Ft. apart.	Treatments. Tile drains of 3 ins. diameter bore, laid 2 ft. deep (additional to usual open drains separating beds).	Mean Yields in Tons Cane per Acre. Field 1 A.O.G., Port Mourant. P.O.J. 2878. Plants.	1st Ratoons.	2nd Ratoons.	3rd Ratoons.	Total for 4 Crops.
I	36	Cross	None.	32.24	28.37	31.92	30.94	123.47
II	36	Long	None.	31.58	34.02	30.89	30.91	127.40
III	36	,,	Across bed every 12 ft. opening into drains.	39.29	34.92	34.88	32.13	141.22
IV	36	,,	Two, along bed, opening into main central drain (fourfoot). Tile drains 12 ft. from open drains and from each other.	38.57	36.56	34.54	32.27	141.94
V	18	,,	None.	37.74	35.11	33.59	33.17	139.61
VI	18	Cross	None.	34.73	33.38	29.34	33.85	131.30
VII	12	Long	None (Cameron-Williams System).	39.04	35.81	31.92	30.01	136.78
			Mean :	36.17	34.02	32.44	31.90	
			Sig. Diff., 20:1:	2.88	4.64	—	—	

(F5—F7) *Field 16 Section 80, Skeldon.*

Reaped as second ratoons in 1948 this trial like 1 A.O.G. Port Mourant showed no significant differences in yield between any of the cultivation treatments. The most productive treatment over the three crop cycle has been long rows planted on a 24 ft. bed untilled after planting.

TABLE II.—Results of a Cultivation Trial on Flood-fallowed Frontland.

Treatment No.	Bed Width, Ft.	Treatments.	Mean Yields in Tons Cane per Acre. Field 16, Section 80, Skeldon. Co. 421. Plants.	1st Ratoons.	2nd Ratoons.	Total for 3 Crops.
I	36	Cross Rows, Ratoons hilled up	36.18	30.88	31.75	98.81
II	36	,, ,, ,, Flat Forked	33.69	29.82	36.00	99.51
III	36	,, ,, ,, Untilled	36.24	29.84	29.60	95.68
IV	24	Long ,, ,, Hilled up	37.56	31.21	30.44	99.21
V	24	,, ,, ,, Flat Forked	38.35	28.78	31.31	98.44
VI	24	,, ,, ,, Untilled	41.70	32.06	34.32	108.08
VII	12	6 C.W. Beds bordered by a single row bed on each side.	40.06	31.45	34.43	105.94
VIII	36	6 Long rows with auxiliary sand drains 2 ft. deep.	40.33	33.05	28.47	101.88
		Mean :	38.02	30.89	32.04	
		Differences not statistically significant.				
		Plants Forked	38.45			
		Plants not Forked	37.58			

(F8—F11) *Field 1 E., Sophia.*

This trial resembles the two preceding ones in that treatment differences which were pronounced to begin with have become steadily less noticeable with successive reapings. As third ratoons there is little to choose between them although the narrower beds still tend to outyield the standard 36 ft. bed.

TABLE III.—Results of a Cultivation Trial on Flood-fallowed Frontland.

Mean Yields in Tons Cane per Acre.

Treatment No.	Treatments. (Row Centres 5 ft. Apart.)	Field 1. E., Sophia.				
		Co. 421.				
		Plants.	1st Ratoons.	2nd Ratoons.	3rd Ratoons.	Total for 4 Crops.
I	5 ft. Bed with single row along bed.	28.85	46.35	40.45	34.43	150.08
II	10 ft. " 2 Rows " "	24.52	47.19	40.65	36.21	148.57
	" " (Cameron-Williams System)	23.16	43.32	36.24	34.42	137.64
III	36 ft. Bed with rows across bed. (Control)	27.32	48.85	37.37	35.11	148.65
IV	24 ft. Bed " " " "	33.91	48.07	39.56	35.49	157.03
V	24 ft. " " 5 rows along "					
	Mean :	27.55	46.86	38.85	35.13	
	Significant Difference, 20: 1:	4.35	—	—	—	

(F12—F13) *Field 6 W., Sophia.*

(F14—F15) *Field 9 W. "A". Sophia.*

(F16—F17) *Field 9 W. "B". Sophia.*

The results of this group of trials as plants were summarised in Sugar Bulletin No. 16 in which it was reported that "none of the refinements tried has exercised a significant effect upon yield". The first ratoon results as shown in Table IV bear out this conclusion.

TABLE IV.—**Results of a Cultivation Trial on Flood-fallowed Frontland.**

Treatments.	Mean Yields in Tons Cane Per Acre.		
	Field 6 W., Sophia.		
	D. 166/34.		
	Plants.	1st Ratoons.	Total for 2 Crops
C.W. System (Normal)	42.23	27.49	69.72
10 Ft. Beds with C. W. System Forked and Planted all over.	42.95	24.87	67.82
Flat Forking throughout Cycle.	39.56	23.72	63.28
Double Deep Drills.	39.69	23.85	63.54
Mean :	41.11	24.98	
Differences not Statistically Significant.			

TABLE V.—Results of a Cultivation Trial on Flood-fallowed Frontland.

Treatments.	Mean Yields in Tons Cane per Acre.		
	Field 9 W., "A" Sophia.		
	D. 166/34.		
	Plants.	1st Ratoons.	Total for 2 Crops.
36 ft. Bed, Cross Rows, Flat Forking.	34.07	36.92	70.99
Modified C.W. Both Banks, 2 ft. Deep Drilled.	38.33	41.92	80.25
,, ,, ,, ,, 1 ft. ,, ,,	34.24	38.27	72.51
C.W. Alternate Banks Deeped Drilled.	38.81	44.38	83.19
,, ,, 1 ft. ,,	34.44	36.86	71.30
Mean :	35.98	39.67	

Differences not Statistically Significant.

TABLE VI.—Results of a Cultivation Trial on Flood-fallowed Frontland.

Treatments.	Mean Yields in Tons Cane per Acre.		
	Field 9 W., "B". Sophia.		
	D. 166/34.		
	Plants.	1st Ratoons.	Total for 2 Crops.
Beds of 6 Long rows with 2 Alternate drills made to accommodate a layer of sand 4 ins. thick covered with trash and refilled afterwards.	38.18	38.90	77.08
Beds of normal cross row cultivation flat banks throughout with 25 rows each.	35.79	37.49	73.28
Mean :	36.98	38.19	

Differences not Statistically Significant.

(F 18) *Field 19 P., Versailles.*

This trial was laid out along similar lines to that in 71 La P., Ogle, the results of which appear in Sugar Bulletins 15 and 16.

It was impossible for the station to reap this trial as plants but the first ratoon results (Table VII) are rather similar to those obtained in the Ogle experiment. There is no significant difference between any of the 9 combinations of seed rate and spacing tried, but there is a slight tendency for the closer spacing to outyield the standard 6 ft. It is possible that this tendency may have been more pronounced in the plant crop.

TABLE VII.—**Results of a Cultivation Trial on Flood-fallowed Riverside Clay.**

Tons Cane per Acre.

Treatments.	Field 19 P., Versailles. 1st Ratoons, D. 14/34.			Mean Yields for Rows & Spacing.	Sig. Diff., 20: 1:
	A 30 Tops in Row.	B 45 Tops in Row.	C 60 Tops in Row.		
6 Rows, 6 ft. spacing	32.51	30.54	29.92	30.99	Nil.
8 ,, 4.5 ,, ,,	32.04	31.48	29.97	31.16	
12 ,, 3.0 ,, ,,	36.53	34.06	36.16	35.58	
Sig. Diff., 20: 1:	Nil.				
Mean Yields for No. of Tops	33.69	32.03	32.02		
Sig. Diff., 20: 1:	Nil.				

Plant Cane reaped by Estate.

SUB-SECTION G.—SUMMARY AND DISCUSSION.

Previous cycle results of this series of cultivation trials (with the exception of 19 P. Versailles) have been fully summarised and discussed in Bulletin 16 and also in a paper read before the 1948 meeting of the British West Indies Sugar Technologists ("Further Results of Trials of Modified Cultivation Systems for British Guiana" Williams, C. H. B., Knowles, W. H. C., and Cameron, C.). The 1948 results do not invalidate any of the conclusions drawn. In general it would seem that the most striking effects of reducing the bed widths, laying tile or "sand" drains, and converting from cross to long rows appear to be felt as plants or first ratoons and to disappear completely in the second and third ratoon cycle. This lends force to the suggestion made by Williams, Knowles and Cameron in the previously quoted paper that apparent benefits of these types of cultivation system may be due, at least in part, to the extra tilth imparted by filling in old drains or digging and refilling new ones for the purpose of subsoil drainage.

TABLE I.—**Estate Acreage of Varieties for the Year 1949.**

	Estate.	P.O.J. 2878.	D. 14/34.	Co. 421.	B. 34104.	Co. 419.	Diamond 10.	D. 166/34.	D. 419/33.	D. 200/36.	Mixed.	D. 21/40.	Diamond 201.	D. 25/38.	S.C. 12/4.	D. 49/30.	New Seedlings.	B. 37161.	D. 49/41.	Total.
Berbice.	Skeldon	302.60	992.10	202.70	1,404.50	1,015.70	—	—	—	20.30	1.30	—	—	56.10	—	—	—	4.50	—	3,999.80
	Port Mourant	767.20	244.10	750.50	2,729.80	18.00	57.80	—	—	43.10	15.30	—	—	13.30	—	—	.50	2.30	—	4,641.90
	Albion	222.60	1,337.30	719.10	2,645.70	97.00	38.20	—	—	53.90	1.00	.50	—	18.00	—	—	1.50	3.80	—	5,138.60
	Rose Hall	446.00	1,279.10	890.10	2,353.10	89.00	75.10	2.80	11.20	—	3.00	—	—	—	—	—	—	—	—	5,149.40
	Lochaber	304.00	2.00	51.00	35.50	6.00	44.00	—	—	—	—	—	—	—	—	—	—	—	—	442.50
	Providence 'B'	—	175.90	1,040.50	152.00	208.50	128.00	15.00	—	32.00	—	—	—	1.00	—	—	—	—	—	1,752.90
	Blairmont	1.00	776.60	1,103.25	182.90	115.50	139.00	13.00	—	64.75	18.20	—	—	43.00	—	—	—	1.80	—	2,459.00
	Bath	45.00	207.90	1,107.80	106.10	302.10	—	—	—	—	—	.30	—	6.50	—	—	—	—	—	1,775.70
	Total Dutch	2,088.40	5,015.00	5,864.95	9,609.60	1,851.80	482.10	30.80	11.20	214.05	38.80	.80	—	137.90	—	—	2.00	12.40	—	25,359.80
	Total English	2,194.91	5,270.76	6,164.06	10,099.69	1,946.24	506.69	32.37	11.77	224.97	40.78	.84	—	144.93	—	—	2.10	13.04	—	26,653.15
	%	8.23	19.78	23.13	37.89	7.30	1.91	.13	.04	.84	.15	—	—	.54	—	—	.01	.05	—	100.00
East Demerara.	Enmore	889.00	533.60	547.00	1,490.70	—	—	—	—	15.00	—	—	—	—	—	—	—	—	—	3,475.30
	Lusignan	350.00	1,000.00	411.00	1,215.30	29.00	125.00	9.00	—	57.00	—	—	—	—	—	—	—	—	—	3,196.30
	L.B.I.	266.25	1,336.25	226.25	603.50	518.50	346.00	—	—	39.00	33.00	—	—	—	—	—	36.25	2.50	—	3,407.50
	Ogle	.50	601.50	232.80	733.60	7.20	322.40	—	—	94.80	—	—	—	—	—	—	.80	9.00	2.60	2,005.20
	Total Dutch	1,505.75	3,471.35	1,417.05	4,043.10	554.70	793.40	9.00	—	205.80	33.00	—	—	—	—	—	37.05	11.50	2.60	12,084.30
	Total English	1,582.54	3,648.39	1,489.32	4,249.30	582.99	833.86	9.46	—	216.30	34.68	—	—	—	—	—	38.94	12.09	2.73	12,700.60
	%	12.46	28.73	11.73	33.46	4.59	6.57	.07	—	1.70	.27	—	—	—	—	—	.31	.09	.02	100.00
Demerara River Banks.	Ruimveldt	—	43.50	12.50	386.50	22.00	252.50	—	—	—	—	—	—	—	4.00	—	—	—	—	721.00
	Houston	103.28	—	—	225.39	—	571.33	—	—	—	—	—	—	—	—	—	—	—	—	900.00
	Diamond	—	957.50	4.00	3,748.00	272.50	2,225.00	—	—	269.50	142.00	—	217.00	—	83.00	42.50	23.00	40.00	6.00	8,030.00
	Wales	—	403.75	866.75	1,609.00	362.00	376.50	10.00	—	—	—	4.50	.50	.50	—	—	—	—	—	3,633.50
	Versailles	70.30	418.20	462.10	801.60	13.00	346.90	9.70	—	37.20	—	2.00	51.50	1.00	—	—	—	—	—	2,213.50
	Total Dutch	173.58	1,822.95	1,345.35	6,770.49	669.50	3,772.23	19.70	—	306.70	142.00	6.50	269.00	1.50	87.00	42.50	23.00	40.00	6.00	15,498.00
	Total English	182.43	1,915.92	1,413.96	7,115.78	703.64	3,964.62	20.70	—	322.34	149.24	6.83	282.72	1.58	91.44	44.67	24.17	42.04	6.32	16,288.40
	%	1.12	11.76	8.68	43.68	4.32	24.34	.13	—	1.98	.92	.04	1.74	.01	.56	.27	.15	.26	.04	100.00
West Demerara.	Leonora	59.00	1,219.10	—	1,771.60	727.10	185.50	—	—	94.80	—	—	—	—	—	—	—	11.00	—	4,068.10
	Uitvlugt	437.50	1,298.30	227.75	2,559.35	444.85	10.75	4.00	—	215.70	9.50	—	—	—	—	—	8.50	—	—	5,216.20
	Total Dutch	496.50	2,517.40	227.75	4,330.95	1,171.95	196.25	4.00	—	310.50	9.50	—	—	—	—	—	8.50	11.00	—	9,284.30
	Total English	521.82	2,645.79	239.37	4,551.83	1,231.72	206.26	4.20	—	326.34	9.93	—	—	—	—	—	8.93	11.56	—	9,757.80
	%	5.36	27.11	2.45	46.65	12.62	2.12	.04	—	3.34	.10	—	—	—	—	—	.09	.12	—	100.00
	Colony English	4,481.70	13,480.86	9,306.71	26,016.60	4,464.59	5,511.43	66.73	11.77	1,089.95	234.68	7.67	282.72	146.51	91.44	44.67	74.14	78.73	9.05	65,399.95
	%	6.85	20.62	14.23	39.78	6.83	8.43	.10	.02	1.67	.36	.01	.43	.22	.14	.07	.11	.12	.01	100.00

THE VARIETY AND FERTILIZER POSITION OF THE SUGAR INDUSTRY, XIV.

BY

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VARIETAL COMPOSITION OF THE 1949 HARVESTS.

The five tables which follow summarize the variety position of the colony for 1949 and the trend of planting in recent years. The data contained therein has been compiled from returns kindly supplied by the Sugar Estates and refer only to estate grown cane which accounts for 98% of the colony's acreage. Table I indicates the varietal position on the individual estates; Table II summarizes the data contained in Table I on a colony and regional basis; Table III shows the proportions of varieties which go to make up the small acreage of "other canes", while Table IV indicates the trend in Varietal planting over the last 8 years.

Table I facing this page. (Inset).

TABLE II.—**Percentage Distribution of the Varieties to be Reaped in 1949.**

Variety.	Total English Acres in the Colony.		Percentage.			
			in West Demerara.	Along Demerara River Banks.	in East Demerara.	in Berbice.
B. 34104	26,016.60	(39.8)	17.5	27.4	16.3	38.8
D. 14/34	13,480.86	(20.6)	19.6	14.2	27.1	39.1
Co. 421	9,306.71	(14.2)	2.6	15.2	16.0	66.2
Diamond 10	5,511.43	(8.4)	3.7	71.9	15.2	9.2
P.O.J. 2878	4,481.70	(6.9)	11.6	4.1	35.3	49.0
Co. 419	4,464.59	(6.8)	27.6	15.8	13.0	43.6
D. 200/36	1,089.95	(1.7)	30.0	29.6	19.8	20.6
Other Canes	1,048.11	(1.6)	3.3	63.9	9.3	23.5
	65,399.95	(100.0%)				

TABLE III.—**Acreages of the Varieties Constituting "Other Canes."**

Variety.	English Acres.		Variety.	English Acres.		Variety.	English Acres.	
	1948	1949		1948	1949		1948	1949
D. 49/30	148	45	D. 166/34	—	67	Diamond 201	388	283
D. 66/30	48	—	D. 25/38	152	147	Co. 213	3	—
D. 419/33	65	12	D. 21/40	15	8	S.C. 12/4	226	91
D. 456/33	7	—	D. 49/41	—	9	B. 37161	—	79

TABLE IV.—**Comparison of Areas Under Various Canes in British Guiana, 1942-1949.**

Variety.	Per Cent of Total Areas in the Colony.							
	1942	1943	1944	1945	1946	1947	1948	1949
Diamond 10	28.1	26.5	25.5	26.7	25.4	21.6	14.4	8.4
P.O.J. 2878	68.8	68 0	65.1	54.8	40.4	27.6	13.6	6.9
D. 166/34	—	1.6	2.2	2.2	1.6	1.0	0.5	—
Co. 419	—	1.3	3.0	4.9	6.5	7.7	8.2	6.8
Co. 421	—	—	1.6	6.3	15.1	19.4	19.3	14.2
D. 14/34	—	—	—	2.7	6.4	11.3	17.4	20.6
B. 34104	—	—	—	—	1.6	7.6	22.6	39.8
D. 200/36	—	—	—	—	—	1.5	1.9	1.7
Other Canes	3.1	2.6	2.6	2.4	3.0	2.3	2.1	1.6

A study of the above tables reveals that the transition period of the variety position referred to in Bulletin 16 is almost over. The replacement of Diamond 10 and P.O.J. 2878 may be regarded as virtually complete and together they occupy only 15.3% of the colony's acreage in 1949. It is unlikely that either will be planted further and by 1950 these canes (which together occupied 97% of the colony's acreage in 1941) will have been replaced by better varieties.

Taking the place of Diamond 10 and P.O.J. 2878 are the two varieties B.34104 and D.14/34 and it seems probable that they may soon come to occupy a position analogous to that held by the two former standards in the early forties —B.34104 corresponding to P.O.J. 2878 and D.14/34 to Diamond 10. B.34104—occupying almost 40% of the 1949 acreage—has proved itself to be the more versatile and consistent and its rise has been spectacular. It performs well in all of the colony's soils and under adverse weather conditions and its juice quality is generally good. It is being extensively planted during 1949 and may well occupy more than half the colony's acreage by 1950. D.14/34 on the other hand is being extended more slowly. It is capable of heavy yields when conditions are in its favour but it does not succeed on pegassy soils or when ratooning during

very wet weather. In addition it is a more difficult cane to establish than is B.34104. In its favour are the high quality of its juice and the fact that it is somewhat easier to cut and load into punts than the Barbados seedling.

Declining in popularity on the estates are the varieties Co. 419, Co. 421 and D.200/36, all three on account of inferior juice quality. There has also been a slight reduction in the acreage under 'other canes' largely as a result of the disappearance of such varieties as D.49/30, D.66/30 and D.419/33. On the other hand the seedling B.37161 is listed in this category for the first time as occupying 79 acres and it is hoped that its performance on an estate scale will justify its extension.

CYCLE AGE OF THE CROPS.

Table V indicates little change in the crop cycle position in 1948 and 1949. There has been a slight increase in the proportion of 3rd ratoons but this is offset by a reduction in the area occupied by fourth and fifth ratoons so that the overall picture remains satisfactory.

TABLE V.— **Cycle Age of the Crops, 1946-1949.**

Category.	Percentage in				Category.	Percentage in			
	1946	1947	1948	1949		1946	1947	1948	1949
Plants	29.3	28.4	31.3	31.2	3rd Ratoons	18.2	11.8	14.3	15.2
1st Ratoons	23.6	27.0	26.1	26 5	4th Ratoons	10.1	7.0	2.5	2.0
2nd Ratoons	16.4	22.3	24.5	24.8	5th Ratoons	2.4	3.5	1.3	0.3

COMMERCIAL YIELDS.

In previous issues of the Sugar Bulletin, it has been customary to record the yields of canes under estate conditions by expressing them in terms of their weighted mean yields on a colony basis. Clearly the order of merit so obtained was often misleading since a variety extensively planted in the more productive areas would tend to finish above one which had been confined to less fertile estates and *vice versa*. A truer picture of the performance of varieties on estates is furnished by Table VI A, B, C, D, in which the weighted mean yields are given on a regional basis. The estates comprising the four zones selected are as follows :—

East Coast Demerara (Table VI A)— Plns. Ogle, La Bonne Intention, Lusignan and Enmore ;

West Coast Demerara (Table VI B)— Plns. Uitvlugt *cum annexis* and Leonora ;

Demerara River Banks (Table VI C)— Plns. Diamond *cum annexis* (including Peter's Hall, Providence and Farm), Ruimveldt, Houston, Versailles, Schoon Ord and Wales ;

Berbice (Table VI D)— Plns. Blairmont, Bath, Providence, Rose Hall, Albion, Port Mourant and Skeldon.

The data contained in Table VI A, B, C, D is summarized for the whole colony in Table VI E. Undue importance should not be attached to returns over small acreages and an arbitrary standard of 100 acres has been selected as the minimum from which reliable performance data can be obtained.

TABLE VI a.— **Weighted Mean Commercial Yields in East Demerara, 1948.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant Canes.			
		100 Acres and over.			
B.34104	1,207.6	13.15	80.63	—	4.00
D.14/34	635.7	13.32	80.90	—	3.94
Diamond 10	208.4	13.10	80.98	—	3.26
		Under 100 Acres.			
B. 37161	0.5	15.61	87.20	—	6.00
Co. 419	55.5	12.56	78.83	—	4.25
Mixed	33.0	13.18	81.90	—	3.21
P.O.J. 2878	95.7	13.06	80.73	—	2.97
Co. 421	23.0	11.56	77.83	—	2.78
		First Ratoons.			
		100 Acres and over.			
B. 34104	325.4	13.02	80.69	—	3.59
P.O.J. 2878	272.2	13.04	80.51	—	3.54
Diamond 10	115.0	14.00	82.54	—	3.43
D. 14/34	838.7	13.07	80.87	—	3.22
D. 200/36	129.4	12.42	79.60	—	3.11
Co. 421	806.7	12.26	79.01	—	3.08
		Under 100 Acres.			
Co. 419	74.7	12.43	79.16	—	3.44
Mixed	0.8	14.14	83.70	—	2.50
D. 25/38	0.9	11.86	78.78	—	2.25
		Second Ratoons.			
		100 Acres and over.			
Diamond 10	178.5	13.29	81.32	—	3.27
D. 14/34	376.8	13.20	81.58	—	3.03
B. 34104	183.3	13.42	81.39	—	2.95
Co. 421	623.0	12.29	79.35	—	2.65
		Under 100 Acres.			
D. 200/36	15.7	12.83	80.45	—	4.00
P.O.J. 2878	74.5	12.87	80.64	—	2.28
Co. 419	7.2	9.82	73.86	—	2.21
		Third Ratoons.			
		100 Acres and over.			
Co. 421	201.2	13.00	80.36	—	2.87
D. 14/34	334.5	13.62	81.19	—	2.84
Co. 419	101.0	12.39	77.97	—	2.47
Diamond 10	305.0	14.46	83.08	—	2.42
P.O.J. 2878	496.7	12.65	79.59	—	2.04
		Under 100 Acres.			
B. 34104	16.0	13.71	81.38	—	3.31
D. 200/36	15.0	13.13	82.71	—	2.65

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VI b.—**Weighted Mean Commercial Yields in West Demerara, 1948.**

Variety.	Acres Harvested.	Crusher Juice.		Fibre % Cane.	Tons 96° Sugar per Acre.*
		Pol. %	Purity.		
		Plant 100 Acres	*Canes. and over.*		
D. 14/34	676.9	14.24	84.53	—	3.39
B. 34104	1,424.2	13.88	83.32	—	3.35
P.O.J. 2878	104.0	11.46	75.62	—	1.87
		Under 100	*Acres.*		
Co. 419	62.5	15.31	83.98	—	3.18
D. 21/40	8.0	10.11	74.20	13.14	2.12
Mixed	33.5	—	—	—	1.61
		First 100 Acres	*Ratoons. and over.*		
B. 34104	597.7	13.92	83.66	13.96	3.39
Diamond 10	195.5	14.61	84.41	12.77	3.23
D. 14/34	399.5	14.40	84.55	13.88	3.21
Co. 419	476.2	14.58	83.01	13.79	3.03
D. 200/36	203.3	13.50	81.33	13.41	2.86
Mixed	177.0	14.81	84.87	—	2.58
Co. 421	262.0	11.82	77.95	—	2.44
P.O.J. 2878	194.0	14.04	82.50	—	2.26
		Second 100 Acres	*Ratoons. and over.*		
Co. 419	530.0	14.75	82.79	13.76	3.21
Diamond 10	172.8	15.37	84.60	—	3.21
D. 14/34	400.7	14.17	83.34	13.81	2.56
P.O.J. 2878	522.2	14.16	83.30	13.86	2.24
Co. 421	716.6	12.76	80.21	13.84	2.18
		Under 100	*Acres.*		
B. 34104	57.2	14.44	85.22	—	2.57
D. 200/36	36.5	13.37	79.84	—	1.93
Mixed	44.5	—	—	—	1.83
		Third 100 Acres	*Ratoons. and over.*		
Co. 419	231.5	15.04	83.36	—	3.33
D. 14/34	213.0	15.24	83.71	—	2.90
P.O.J. 2878	331.0	13.20	80.94	—	2.17
Co. 421	232.7	11.55	77.81	12.98	2.07
		Under 100	*Acres.*		
Diamond 10	45.3	15.55	86.40	—	3.37
Mixed	10.5	—	—	—	2.58
B. 34104	15.0	13.72	83.59	—	2.21

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VI c.—**Weighted Mean Commercial Yields Along Demerara River Banks, 1948.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant Canes. 100 Acres and over.			
Co. 421	168.7	13.02	80.54	—	3.80
B. 34104	2,560.1	14.03	84.01	13.22	3.58
D. 14/34	242.5	14.28	82.84	13.00	3.47
D. 200/36	207.0	13.72	82.77	12.74	3.42
Diamond 10	542.9	15.23	83.00	13.00	2.77
Co. 419	551.5	12.60	80.34	11.72	2.72
		Under 100 Acres.			
D. 166/34	4.7	13.58	81.84	—	4.50
Diamond 10	20.0	14.20	85.57	10.00	3.85
B. 37161	.5	—	—	—	3.47
S.C. 12/4	30.0	13.88	84.31	—	3.45
Diamond 201	56.6	14.25	84.48	10.80	2.22
D. 21/40	4.0	13.25	81.53	—	1.75
		First Ratoons. 100 Acres and over.			
D. 200/36	111.8	15.23	85.17	13.00	3.62
Mixed	164.5	15.16	85.90	—	3.38
D. 14/34	182.2	14.78	84.34	13.35	3.20
B. 34104	382.6	12.17	83.60	13.29	3.10
Diamond 201	156.2	14.34	83.46	11.60	3.06
„ 10	2,567.6	15.05	85.75	13.00	2.86
Co. 421	456.0	12.88	80.40	13.80	2.53
		Under 100 Acres.			
D. 25/38	1.5	13.04	80.99	—	4.33
D. 21/40	2.5	13.83	82.08	—	3.42
P.O.J. 2878	22.5	13.67	81.53	—	3.24
D. 49/30	51.5	15.92	86.95	12.46	3.22
S.C. 12/4	74.7	15.03	87.44	—	2.66
Co. 419	89.2	12.63	81.22	13.51	2.51
		Second Ratoons. 100 Acres and over.			
Co. 419	151.1	14.37	83.80	13.02	3.13
Diamond 201	129.0	15.70	86.01	12.40	2.84
D. 14/34	185.4	14.49	83.36	12.29	2.68
Diamond 10	2,242.1	15.43	85.50	13.00	2.59
S.C. 12/4	120.5	15.35	87.61	—	2.54
Co. 421	813.1	12.81	80.25	—	2.46
		Under 100 Acres.			
D. 21/40	.5	15.20	84.90	—	4.00
D. 49/30	89.3	16.37	88.51	12.62	2.79
B. 34104	93.8	14.67	83.73	13.16	2.67
P.O.J. 2878	7.3	13.71	82.59	—	2.16
D. 200/36	10.9	12.78	80.76	12.60	2.03
Mixed	22.5	16.92	87.30	—	1.47
D. 166/34	9.0	13.28	82.20	—	1.33
		Third Ratoons. 100 Acres and over.			
Diamond 10	543.0	15.13	82.90	13.00	2.29
		Under 100 Acres.			
Co. 419	88.0	12.95	79.47	—	2.51
D. 166/34	5.0	13.90	83.21	—	2.51
Co. 421	39.2	14.34	83.25	—	2.35
Diamond 201	4.7	15.42	84.71	—	2.33
D. 602/22	1.0	13.75	81.83	—	2.29
D. 456/33	2.0	11.82	80.99	—	2.28
D. 14/34	17.0	14.42	83.68	—	2.09

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VI d.—Weighted Mean Commercial Yields in Berbice, 1948.

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant 100 Acres	*Canes. and over.*		
B. 34104	2,618.4	14.60	83.65	—	4.88
Co. 421	933.8	13.42	80.69	—	4.14
D. 14/34	1,736.1	13.67	82.67	—	3.93
Co. 419	359.8	13.97	80.23	—	3.69
		Under 100	*Acres.*		
P.O.J. 2878	20.5	13.52	83.48	—	5.13
Mixed	16.0	14.20	83.93	—	4.99
Diamond 10	81.0	—	—	—	4.60
D. 200/36	27.0	14.24	83.57	—	2.97
		First 100 Acres	*Ratoons. and over.*		
B. 34104	1,290.0	14.71	83.71	—	4.25
D. 14/34	1,239.0	13.85	82.29	—	4.10
Co. 421	1,490.8	13.06	80.83	—	3.83
Co. 419	516.3	13.46	80.18	—	3.58
P.O.J. 2878	318.8	12.62	80.73	—	3.05
Diamond 10	108.0	12.44	80.58	—	2.89
		Under 100	*Acres.*		
Mixed	1.0	15.85	83.40	—	6.20
D. 200/36	69.2	13.79	81.37	—	3.98
D. 21/40	0.8	12.59	81.03	—	3.73
D. 25/38	68.6	13.32	79.79	—	3.48
		Second 100 Acres	*Ratoons. and over.*		
Co. 419	249.7	13.60	80.36	—	4.03
D. 14/34	914.5	14.41	82.78	—	3.78
D. 200/36	110.5	13.63	82.01	—	3.74
B. 34104	285.6	14.16	82.07	—	3.69
Co. 421	1,825.1	13.36	80.68	—	3.39
P.O.J. 2878	1,418.3	—	—	—	3.00
Diamond 10	373.6	14.34	83.67	—	2.78
		Under 100	*Acres.*		
D. 25/38	26.3	13.43	79.44	—	3.36
D. 166/34	5.1	17.04	86.50	—	3.29
Mixed	3.2	12.60	80.26	—	3.24
		Third 100 Acres	*Ratoons. and over.*		
D. 166/34	158.0	14.58	83.56	—	4.10
Co. 421	1,296.0	13.62	81.07	—	3.23
D. 14/34	345.1	14.87	83.37	—	3.12
Co. 419	575.3	13.78	80.10	—	3.01
Diamond 10	166.9	13.14	81.52	—	2.77
P.O.J. 2878	1,548.5	14.74	83.33	—	2.65
		Under 100	*Acres.*		
B. 34104	49.0	15.89	85.10	—	3.53
D. 200/36	32.5	12.72	81.17	—	2.99
Mixed	11.5	13.62	80.50	—	2.78

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VI e.—**Weighted Mean Commercial Yields Under Estate Conditions, 1948.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant Canes.			
		100 Acres and over.			
Co. 421	1,125.5	13.32	80.61	—	4.05
B. 34104	7,810.3	14.06	83.24	13.22	4.04
D. 14/34	3,291.2	13.76	82.72	12.99	3.90
D. 200/36	234.0	12.74	82.84	12.74	3.37
Co. 419	1,020.3	11.68	80.44	11.72	3.16
Diamond 10	832.3	14.62	82.42	13.00	3.07
P.O.J. 2878	220.2	12.35	78.59	—	2.65
		Under 100 Acres.			
B. 37161	1.0	15.61	87.50	—	4.73
D. 166/34	4.7	13.58	81.80	—	4.50
Diamond 10	20.0	14.20	85.57	10.00	3.85
S.C. 12/4	30.0	13.88	84.31	—	3.45
Mixed	82.5	13.53	82.65	—	2.91
Diamond 201	56.6	14.25	84.48	10.80	2.22
D. 21/40	12.0	11.16	76.64	13.14	2.00
		First Ratoons.			
		100 Acres and over.			
B. 34104	2,596.6	13.94	83.30	13.68	3.80
D. 14/34	2,659.4	13.75	82.33	13.56	3.63
Co. 421	3,015.5	12.71	80.03	13.80	3.31
Co. 419	1,156.4	13.79	81.36	13.72	3.26
D. 200/36	513.7	13.61	81.66	13.16	3.16
Diamond 201	156.2	14.35	83.49	11.60	3.06
P.O.J. 2878	807.5	13.14	81.11	—	3.03
Mixed	343.3	15.04	85.55	—	2.98
Diamond 10	2,986.1	14.92	85.42	12.85	2.91
		Under 100 Acres.			
D. 21/40	3.3	13.65	82.56	—	3.53
D. 25/38	71.0	13.29	79.79	—	3.48
D. 49/30	51.5	15.92	86.95	12.46	3.22
S.C. 12/4	74.7	15.03	87.44	—	2.66
		Second Ratoons.			
		100 Acres and over.			
Co. 419	938.0	14.34	82.24	13.52	3.41
D. 200/36	173.6	13.45	81.36	12.60	3.28
D. 14/34	1,877.4	14.12	82.72	13.34	3.26
B. 34104	619.9	14.04	82.41	13.16	3.21
Co. 421	3,977.8	12.97	80.30	13.84	2.86
Diamond 201	129.0	15.70	86.01	12.40	2.84
P.O.J. 2878	2,022.3	13.18	81.99	13.86	2.78
Diamond 10	2,967.0	15.17	84.96	13.00	2.68
S.C. 12/4	120.5	15.35	87.61	—	2.54
		Under 100 Acres.			
D. 21/40	.5	15.20	84.90	—	4.00
D. 25/38	26.3	13.43	79.44	—	3.36
D. 49/30	89.3	16.37	88.50	12.62	2.79
D. 166/34	14.1	14.64	83.76	—	2.04
Mixed	70.2	16.74	87.00	—	1.78
		Third Ratoons.			
		100 Acres and over.			
Co. 421	1,769.1	13.30	80.61	12.96	3.01
Co. 419	995.8	13.86	80.58	—	2.98
D. 14/34	909.6	14.51	82.69	—	2.94
D. 166/34	163.0	14.56	83.54	—	2.85
P.O.J. 2878	2,376.0	13.66	81.49	—	2.46
Diamond 10	1,060.2	14.82	83.06	11.47	2.45
		Under 100 Acres.			
B. 34104	80.0	15.05	84.12	—	3.24
D. 200/36	48.0	12.86	81.67	—	2.88
Mixed	22.0	13.62	80.50	—	2.69
Diamond 201	4.7	15.42	84.71	—	2.33
D. 602/22	1.0	13.75	81.83	—	2.29
D. 456/33	2.0	11.82	80.99	—	2.28

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

Table VI A, B, C, D, shows that for 1948 B.34104 has once again proved to be the most productive commercial cane in the colony. Considering only returns from 100 acres and over it will be seen that as plants it is either first or second in all four categories being particularly outstanding in Berbice; while as first ratoons it is ahead of all competitors in East and West Demerara and Berbice. It has not been extensively reaped as second or third ratoons. Closely following B.34104 is the Demerara seedling D.14/34 which heads the list as plants in West Demerara and is superior to B.34104 as first ratoons on the Demerara River Banks. Co. 421 rather surprisingly comes first as plants along the Demerara River in which group it was reaped only at Plns. Versailles and Schoon Ord. In general however, it is best suited to conditions in East Demerara and Berbice and its ratoon performance in West Demerara and the Demerara River area is poor. Co. 419 shows up as a vigorous ratooner and leads as second ratoons on the River Bank and in Berbice while as third ratoons it is easily first in West Demerara. In general it will be seen that the increasing popularity of B.34104 and to a lesser extent D.14/34 is justified by performance data, as is the replacement of such varieties as Co. 421, Co. 419 and D.200/36 and the two old standards P.O.J. 2878 and Diamond 10.

FERTILIZERS IN 1948.

Table VII, adapted from the Reports of the Comptroller of Customs, shows the fertilizers imports for the past 6 years. It will be seen that there has been a considerable increase in both the total tonnage and value of the fertilizers imported in 1948. Imports of nitrogenous fertilizers show a welcome improvement over the 1947 figure but are still to be regarded as inadequate. The importation of liming materials continues to rise steadily while there has been a sharp increase in the amount of 'Other fertilizers' chiefly due to greater importation of phosphatic manures.

Table VIII presents statistics relative to the value and quantity of fertilizers used in British Guiana for the three years 1946, 1947 and 1948. Data for this table has been kindly supplied by estate Managers. It will be seen that while there has been a further slight decline in the quantity of Sulphate of Ammonia applied relative to 1947 the cost per ton of this fertilizer has risen so that the value of the application is approximately $76,000.00 more than in the proceeding year. Both in 1947 and 1948 the use of Sulphate of Ammonia was severely restricted by difficulties of supply, and the application for these two years is approximately 2,000 tons less than in 1946. Just over 300 tons of Calcium cyanamide have been used in an attempt to supplement the supply of nitrogen. Increased use of Basic Slag and Limestone and to a lesser extent Rock Phosphate are also indicated. A noteworthy feature of the table is the steady upward trend in the price of Sulphate of Ammonia the cost per ton of which has increased by 28% since 1946.

TABLE VII.—**Fertilizers Imported into British Guiana in Recent Years.**

Year.	Nitrogenous Fertilizers (almost entirely Ammonium Sulphate).			Manurial Lime and Limestone.			Other Fertilizers (mainly Rock Phosphate and Basic Slag with some Potassium Sulphate).			Total Imports.	
	Tons.	Value $	Value per Ton, $	Tons.	Value $	Value per Ton, $	Tons.	Value $	Value per Ton, $	Tons.	Value $
1943	2,051†	185,042†	90.22	1,015	14,787	14.57	22*	949*	43.14	3,088	200,778
1944	11,993†	879,468†	73.33	2,581	37,963	14.71	...	...	...	14,574	917,431
1945	10,938†	756,971†	69.21	2,916	51,185	17.55	180*	7,022*	39.01	14,034	815,178
1946	10,456	667,246	63.81	4,853	72,854	15.01	974*	30,911*	31.74	16,283	771,011
1947	8,452	798,497	94.47	5,333	74,930	14.05	1,722*	65,393*	37.98	15,507	938,820
1948	10,158†	954,186†	93.93	6,425	89,135	13.87	4,839*	194,422*	40.18	21,422	1,237,743
Mean	9,008	706,902	78.47	3,854	56,809	14.74	1,547	59,739	38.62	14,409	823,450
% of Mean Annual Imports:	62.52	85.85		26.75	6.90		10.73	7.25			

*Includes
- 1943: All Pulverized Rock Phosphate.
- 1945: All Superphosphate of Lime.
- 1946: Basic Slag, Superphosphate and Pulverised Rock Phosphate.
- 1947: Basic Slag, Superphosphate, Rock Phosphate and Limax.
- 1948: ,, ,, and ,,

†Includes
- 1943: 1,339 tons of Cyanamide valued at $112.709 or $ 84.17 per ton.
- ,, : 706 ,, ,, Ammonium Chloride ,, ,, $ 71,587 or $101.40 per ton.
- ,, : 5 ,, ,, ,, Nitrate ,, ,, $ 631 or $126.20 per ton.
- ,, : 1 ton ,, Potassium ,, ,, ,, $ 115 or $115.00 per ton.
- 1944: 2,738 tons ,, Cyanamide ,, ,, $216,974 or $ 79.25 per ton.
- ,, : 1,500 ,, ,, Ammonium Chloride ,, ,, $156,867 or $104.58 per ton.
- ,, : 41 ,, ,, ,, Nitrate ,, ,, $ 3,579 or $ 87.29 per ton.
- ,, : 2 ,, ,, Sodium ,, ,, ,, $ 139 or $ 69.50 per ton.
- 1945: 446 ,, ,, Cyanamide ,, ,, $ 39,972 or $ 89.62 per ton.
- ,, : 2 ,, ,, Sodium Nitrate ,, ,, $ 180 or $ 90.00 per ton.
- 1948: 529 ,, ,, Cyanamide ,, ,, $ 58,274 or $110.16 per ton.

TABLE VIII —**Values and Quantities of Fertilizers Used on British Guiana Sugar Estates, 1946—1948.**

Fertilizers.	Value, $			Per cent. of Total Value.			Per Ton, $			Quantity, Tons.			Per cent. of Total Quantity.		
	1946	1947	1948	1946	1947	1948	1946	1947	1948	1946	1947	1948	1946	1947	1948
Ammonium Sulphate	866,830.54	819,678.51	895,668.33	89.1	82.4	77.2	81.44	93.01	103.89	10,643.62	8,812 81	8,621.61	68.7	56.9	47.4
Calcium Cyanamide	2,374.94	82.50	37,327.80	0.2	...	3.2	105.32	110.00	114.98	22.55	0.75	324.65	0.1	...	1.8
Basic Slag	9,275.61	74,164.02	85,898.66	1.0	7.5	7.4	55.21	67.68	58.88	168.00	1,095.75	1,458.90	1.1	7.1	8.0
Superphosphate	12,798.01	1,789.67	397.52	1.3	0.2	...	59.97	53.74	64.64	213.40	33.30	6.15	1.4	0.3	...
Limestone	69,163.03	78,729.42	110,591.31	7.1	7.9	9.6	16.91	16.02	15.97	4,090.15	4,913.79	6,922.86	26.4	31.7	38.1
Rock Phosphate	12,957.73	20,049.02	29,901.61	1.3	2.0	2.6	35.61	32.17	35.13	363.89	623.25	851.25	2.3	4.0	4.7
TOTAL	973,399.86	994,493.14	1,159,785.23	100.0	100.0	100.0	...	...	...	15,501.61	15,479.65	18,185.42	100.0	100.0	100.0

REPORT ON THE SUGAR EXPERIMENT STATIONS FOR THE YEAR 1948.

STAFF.

W. H. C. KNOWLES, A.I.C.T.A., Dip. Agr.	*Sugar Agronomist.*
C. CAMERON	*Field Manager.*
E. PAYNE	*Field Assistant (to Sept.).*
C. A. BANNISTER	*Field Assistant.*
J. TALMA	*Field Assistant.*
H. W. PAYNE	*Field Assistant (from Oct.).*
H. B. SINGH	*Analyst and Statistician.*
C. A. V. SMITH	*Statistical Assistant.*

2. Mr. Payne resigned the post of First Field Assistant on the 30th September to pursue studies in Agriculture at the University of British Columbia, Vancouver, Canada.

3. Messrs. Bannister and Talma were promoted to the positions of First and Second Field Assistants respectively, as from 1st October.

4. Mr. H. W. Payne, formerly Junior Soil Survey Officer, was appointed Third Field Assistant as from 1st October.

5. Absences of the Staff from duty during the year were as follows :—

	Casual Leave.	*Sick Leave.*	*Vacation Leave.*
Mr. Knowles	8—20. x.	10—18. ii.	—
Mr. Cameron	5—21. i.	—	3—31. viii.
Mr. Singh	—	—	12.xi.48—12.ii.49
Mr. Smith	—	—	15.i.—28.ii.
Mr. Bannister	—	—	—
Mr. Talma	—	—	—
Mr. Payne	1—18.v.	—	—

COMMITTEE.

6. The following members formed the British Guiana Sugar Experiment Stations' Committee for the year :—

THE DIRECTOR OF AGRICULTURE	*Chairman.*
MR. T. R. COWELL	*Messrs. Sandbach, Parker & Co., Ltd.*
MR. R. R. FOLLETT-SMITH	*Messrs. Booker Bros., McConnell & Co., Ltd.*
MR. G. M. ECCLES	*Messrs. S. Davson & Co., Ltd. (to May).*
MR. L. S. BIRKETT	*Messrs. S. Davson & Co., Ltd. (from June).*
MR. H. R. BARNWELL	*Messrs. Sandbach, Parker & Co., Ltd.*
MR. H. A. BARCLAY	*Messrs. Booker Bros., McConnell & Co., Ltd.*
Mr. R. F. MILNE	*Messrs. Booker Bros., McConnell & Co., Ltd.*

Meetings were held on the 26th February, 31st August, 2nd November and 22nd December, 1948.

FINANCE.

7. The sum of $37,423.58 was voted from the funds of the Sugar Experiment Stations' Committee for the working of the Station during the year; the total spent was $39,952.86.

8. Receipts from Assessments during the year amounted to $28,191.35, those from sale of canes to $9,892.36 and miscellaneous receipts to $411.17.

9. Of the amount spent from the funds of the Committee $635.24 was further expended on a Soil Survey of the Sugar Lands of the Colony along with $487.76 spent for the British West Indies Sugar Technologists' Conference in Barbados.

EQUIPMENT.

10. Due to measures of economy no major repairs were effected during the year save for an addition to the kitchen of the Front watch house.

CANE BREEDING AND INTRODUCTION.

TABLE I.—**Demerara Seedlings in Tests and Undergoing Multiplication, etc., December, 1948.**

Year.	Number of Seedlings.	
	In Test	Under Multiplication, etc.
1934	1	—
1936	1	—
1937	—	—
1938	1	—
1939	1	—
1940	1	—
1941	12	—
1942	2	—
1943	33	—
1944	17	—
1945	80	—
1946	—	260
1947	—	—
Total	149	260

TABLE II.—**Barbados Seedlings in Tests and Undergoing Multiplication, etc., December, 1948.**

Year.	Number of Seedlings.	
	In Test.	Under Multiplication, etc.
1933	1	—
1934	1	—
1937	3	—
1938	1	—
1940	3	—
1941	4	—
1942	5	—
1943	21	—
1944	21	—
1945	—	15
1946	—	36
Total	60	51

11. *The 1946 seedlings* have been subjected to their first selection and 260 have been extended on frontland clay at Sophia.

12. Cane varieties imported during the year through the Central Plant Quarantine Station, I.C.T.A., Trinidad, B.W.I., were as follows :

M.134/32, M.112/34, M.213/40 and M.423/41.

The following varieties were imported direct from Barbados during 1948, B.45188, B.45224, B.45237, B.45267, B.45270 and B.45274.

EXPERIMENTS.

13. In Sugar Bulletin No. 17 the experiments reaped during the year have been fully reported and they will not be discussed here. At the end of the year there were 54 variety, 13 manurial and 14 cultivation experiments in progress.

MISCELLANEOUS.

14. Table III gives statistics, for recent years, as to field experiments started and reaped, cane cuttings distributed, cane samples analysed, etc.

15. A Plant Quarantine Plot was started at the Head Office Compound of the Department of Agriculture in April.

TABLE III—**Statistics of Seedlings, Cane Distribution, Field Experiments, Cane and Soil Samples, Canes Sold and Visits Paid to Estates, 1939—1948.**

Year.	Seedlings basketed.	Cane Cuttings Distributed.		Field Experiments.		Cane Samples.		Soil Samples Taken.	Cane Sold to Pln. Ogle.		No. of Days Visiting Estates.
		No. of Cuttings.	No. of Bags.	Started.	Harvested.	No. Taken and analysed.	Cane Crushed (Tons).		Deliveries (Tons).	Net Receipts, $	
1939	9,714	372,320	2,864	29	76	1,797	21	208	1,326.95	2,818.25	184
1940	19,557	430,950	3,315	41	56	559	14	42	1,114.40	2,657.55	216
1941	21,354	637,780	4,906	30	62	626	7	18	1,077.50	2,713.32	230
1942	6,007	881,660	6,782	28	74	909	21	9	1,476.70	3,718.98	212
1943	8,951	524,810	4,037	19	78	819	16	159	1,352.85	3,525.65	211
1944	12,903	602,420	4,634	11	72	434	14	31	1,590.09	5,053.26	139
1945	6,043	578,240	4,448	98*	118†	605	14	95	1,461.02	6,812.25	173
1946	3,896	447,230	3,671	55*	111†	505	15	51	1,750.20	8,776.95	177
1947	—	172,900	1,330	27*	64†	403	15	18	2,153.37	9,542.47	211
1948	—	187,590	1,443	37	52	428	12	290††	2,232.05	9,892.36	162

1945 { * Includes 64 Maize Micro-plot Experiments
† Includes 53 „ „ „

1946 { * Includes 30 „ „ „
† Includes 39 „ „ „

1947 { * Includes 5 „ „ „
† Includes 5 „ „ „

1948 †† Includes 201 Sent to the I.C.T.A.

16. A Field Day for Sugar Estate Staffs was held at the Sugar Experiment Station in July and was attended by the Deputy Director and Chief Research Officer of the Department of Agriculture and twenty-five managers and overseers.

17. The British West Indies Conference of Sugar Technologists was held in Barbados in October and was attended by the Sugar Agronomist who took the opportunity also of visiting Sugar Estates in Trinidad with a view to seeing new methods of cultivation, etc.

18. During September a Committee was formed for the purpose of discussing the Research Work of the Station and advising on its conduct. This Committee was designated 'Sugar Experiment Station Research Sub-Committee' and was constituted as follows :—

H. H. CROUCHER, ESQ., B.Sc., Director of Agriculture	*Chairman.*
R. R. FOLLETT-SMITH, ESQ., B.Sc.	*Messrs. Booker Bros., McConnell & Co., Ltd.*
L. S. BIRKETT, ESQ., A.I.C.T.A.	*Messrs. S. Davson & Co., Ltd.*
A. HARLEY, ESQ.	*Messrs. Sandbach, Parker & Co., Ltd.*
G. C. STEVENSON, ESQ., B.A., A.I.C.T.A.	*Chief Research Officer, Department of Agriculture.*
W. H. C. KNOWLES, ESQ., A.I.C.T.A.....	*Sugar Agronomist and Secretary.*

19. Seventy-six persons, including those connected with the Sugar Industry of the Colony and abroad, visited the station during the year.

20. During the year four cuttings each of D.14/34, D.419/33 and D.200/36 were shipped to the United States and 4 cuttings each of D.14/34, D.200/36, D.25/38, D.21/40 and D.40/41 were shipped to Africa.

RAINFALL.

21. Table IV compares the 1948 monthly rainfall at the Sugar Experiment Station with the monthly averages for 1921—1948.

TABLE IV.—**Comparison of the Rainfall at Sophia for the year 1948, with the Average for 1921-1948.**

Month.	Actual Rainfall, 1948. Inches.	Average Rainfall, 1921—1948. Inches.	Excess or Deficit, Inches.
January 1948	4.69	8.47	— 3.78
February „	7.49	4.64	2.85
March „	8.44	4.54	3.90
April „	12.46	6.38	6.08
May „	17.69	12.41	5.28
June „	14.36	14.67	— 0.31
July „	13.23	11.75	1.48
August „	3.95	7.43	— 3.48
September „	2.81	2.74	0.07
October „	2.56	3.84	— 1.28
November „	8.98	5.85	3.13
December „	9.88	13.93	— 4.05
Total	106.54	96.65	9.89

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